ADDRESSING TRAUMA IN URBAN YOUTH: EVALUATING THE IMPLEMENTATION OF BALTIMORE CITY HEALTH DEPARTMENT'S CITYWIDE TRAUMA-INFORMED CARE TRAINING INTERVENTION

by

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ABSTRACT

Adverse childhood experiences are associated with negative short- and long-term biological, psychological, and social consequences for youth, thereby posing a significant public health problem. While there is substantial evidence supporting treatments to address trauma and prevent the negative sequelae of trauma, far less attention has been devoted towards the pathway by which traumatized youth are able to access the needed treatments and services. Furthermore, there is a dearth of research considering how adult professionals outside of the traditional healthcare system who have contact with traumatized youth can serve as potential gatekeepers and support youth in accessing trauma-specific treatments and services. An examination of trauma-informed care (TIC) interventions that engage non-clinicians in becoming more aware of how to recognize trauma in youth and respond appropriately to youth that have experienced trauma may be a viable strategy for promoting the healing of traumatized youth.

This study combines quantitative and in-depth, qualitative data to advance understanding of a TIC training intervention's impact on improving organizational and provider capacity to recognize and respond appropriately to youth that have experienced trauma, and the contextual factors that may influence the proposed impact. In response to the Baltimore unrest in April 2015 and the heightened awareness of the high prevalence of trauma among Baltimore City youth, the Baltimore City Health Department (BCHD) in partnership with Behavioral Health System Baltimore, developed the Healing Baltimore initiative through a grant from the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Mental Health Services, National Center

for Trauma Informed Care. Part of the vision of the Healing Baltimore initiative was to have all frontline workers trained in TIC. The first two aims of this study draw upon data from pre-post surveys with providers in the training that were conducted at the beginning and the conclusion of the BCHD's nine-month TIC training intervention. All three aims use qualitative data collected during the semi-structured interviews conducted shortly after the conclusion of the intervention. In Aim 1, we examined changes in trainees' knowledge about trauma, attitudes towards individuals that have experienced trauma, and beliefs about capacity to respond appropriately to traumatized individuals. Aim 2 evaluated changes in organizational and provider level factors associated with TIC implementation. Aim 3 involved the use of qualitative methods to explore the barriers and facilitators to providing trauma treatment or making referrals to trauma-specific treatments and services from the perspectives of providers.

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CHAPTER 1. INTRODUCTION

1.1 Background

1.1.1 Childhood Trauma is Common and has Negative Short- and Long-Term Outcomes

Traumatic experiences in childhood, often referred to as adverse childhood experiences (ACEs), are common. ACES include physical, emotional, and sexual abuse; a substance-dependent parent; an incarcerated, mentally ill, or suicidal household member; spousal abuse between parents; and divorce or separation that meant one parent was absent during childhood. The seminal ACEs study (Anda, 2006) of insured, predominantly white, middle-class working adults (N=13,494) found that not only are childhood adversities common with at least 1 ACE reported by 64% of respondents, but in addition, 1 in 8 respondents endorsed 4 or more ACEs (Anda, 2006). The negative consequences of ACEs throughout the lifespan are well supported by the literature. School-age children may exhibit symptoms such as aggressive behavior, loss of ability to concentrate, and academic performance. Adolescents may display depression and social withdrawal, increased risk taking, and sleep and eating disturbances (Hamblen, 2001). Results from the ACES study demonstrated a significant dose-response relationship between the number of childhood trauma exposure, and high-risk behaviors (e.g., smoking, unprotected sex), chronic illness such as heart disease and cancer, and early death (Anda, 2006). Moreover, not only do ACEs contribute to greater symptom severity of mental, behavioral, and physical health problems (Spitzer, 2007), they also have been associated with poorer treatment outcomes (Driessen, 2008; Cook, 2005).

There are several potential mechanisms by which trauma translates into adverse outcomes. For example, the neurobiological consequences of early childhood trauma have been investigated. Normal neurobiological development and function is partly determined by the environment. The body's immune system and stress response systems may not develop normally when a child grows up under exposure to constant or extreme stress. There is strong evidence supporting the enduring negative effects of traumatic childhood experiences on brain development, including disruption of neurotransmitters, causing escalation of the stress response (Heim, 2008; Heim, 2008a; Teicher, 2002). Allostasis is the term that has been used to describe the body's attempt to balance itself in response to a series of stressors, resulting in the ongoing adjustment of its typical operating range or set points, including, in some cases, downregulation of the system to maintain internal stability (Evans, 2003). Physiological signs of the consequences of this downregulation include elevated blood pressure, cortisol, epinephrine, and norepinephrine; hyperactivity; and poor recovery from acute demand (McEwen, 1998). These chemical responses can negatively affect critical neural growth during sensitive periods of childhood development and can even lead to cell death.

Later in the lifespan, when the child or adult is exposed to even ordinary levels of stress, the immune and stress response systems may automatically respond as if the individual is exposed to extreme stress. For example, an individual may experience rapid breathing or heart pounding, or may "shut down" entirely, which are adaptive responses when faced with a significant threat, but maladaptive in the context of normal stress (Shonkoff, 2011). Such impairments during a critical period in neurobiological development have been shown to have significant negative downstream effects on mental

and physical health. Stress-induced remodeling of neuronal structure and connectivity has been shown to alter behavioral and cognitive processes (Cook, 2005). For example, a child may struggle with emotional self-regulation and may lack impulse control or the ability to think through consequences before acting (Cook, 2005). Conversely, children who have experienced complex trauma often have difficulty identifying, expressing, and managing emotions, and may have limited language for feeling states, and as a result, experience significant depression and/or anxiety (Shonkoff, 2011). Moreover, as a defense mechanism, they may also automatically dissociate, or mentally separate themselves from a stressful situation, which can have adverse effects on learning, classroom behavior, and social interactions. Last, allostatic load, including heightened immune responses are known risk factors for major chronic diseases in adulthood including cardiovascular, respiratory and psychiatric diseases (McEwen, 1998).

1.1.2 Limited Mental Health Resources for Individuals with a History of Childhood Trauma

As noted earlier, the ACEs study was conducted with a study population consisting of insured, predominantly White, middle-class adults, and still found a high prevalence of ACEs and subsequent increase in chronic disease and mental and alcohol/substance use problems. These findings underscore the extensive biopsychosocial implications of ACEs for low-income youth of color who are chronically exposed to ACEs. These individuals often are not connected to the formal mental and behavioral health care system (SAMHSA, 2014). Thus, their trauma goes unaddressed, which subsequently, increases their risk for high-risk behaviors, mental and substance use

disorders and chronic physical diseases (Felitti, 1998; Green, 2010). Studies of people in the juvenile and criminal justice system reveal high rates of mental/behavioral health problems and personal histories of trauma (Ford, 2013).

The systems that provide services to children with both previous and ongoing ACEs are typically fragmented. Although public service agencies commonly overlap in the populations they serve, an integrated approach that promotes communication and collaboration across these agencies to enhance prevention and treatment of youth with a history of ACEs has been lacking. Additionally, the public institutions and service systems themselves can inadvertently contribute to the re-traumatization of affected youth. The use of coercive practices, such as seclusion and restraints in the behavioral health system, the abrupt removal of a child from an abusing family in the child welfare system, the harsh disciplinary practices in educational/school systems, and intimidating practices in the criminal justice system can be re-traumatizing for individuals who enter these systems (SAMHSA, 2014). In addition to enhanced integration of public services and supports, there is a need to train service providers how to recognize and respond to individuals in a way that does not re-traumatize youth and how to promote referrals of trauma-affected youth to the appropriate support systems to heal from trauma.

1.2 Conceptual Framework and Approaches

1.2.1 Implementation Science Frameworks

Implementation science is a growing field that seeks to understand the process by which research gets translated from public health knowledge into practice (Fixsen, 2005). There are numerous approaches to conceptualizing intervention implementation, such as

Aaron's Exploration, Preparation, Implementation, Sustainment (EPIS) Model (Aarons, 2011); Feldstein and Glasgow's Practical, Robust Implementation, and Sustainability Model (PRISM; Feldstein, 2008); Glisson's Availability, Responsiveness, Continuity (ARC) Organization Improvement model (Glisson, 2005); Damschroder's Consolidated Framework for Implementation Research (CFIR; Damschroder, 2009); and Glasgow's Reach, Effectiveness, Adoption, Implementation, Maintenance framework (RE-AIM; Glasgow, 1999). These frameworks have in common an emphasis on several factors that are predicted to influence successful implementation, including characteristics of the intervention, as well as contextual factors such as organizational and individual determinants of implementation. Relevant intervention characteristics include the feasibility and acceptability of the intervention. *Feasibility* includes the fit and practicability of an intervention in a given setting. *Acceptability* addresses whether the implementers and recipients, based on their knowledge of and/or direct experience with the intervention, perceive the intervention as agreeable, palatable, or satisfactory (Landsverk, 2012). Another relevant intervention factor is the issue of appropriateness, defined as the perceived relevance of the intervention for a given context (i.e. setting, user group) and/or its perceived relevance and capacity to address a particular issue (Proctor, 2012). Implementation research suggests several organizational factors can impact uptake of evidence-based intervention, including *organizational culture*, e.g., a pattern of shared assumptions, attitudes, and beliefs in an organization (Aarons, 2011; Damschroder, 2009; Glisson, 2005; Greenhalgh, 2004) and *organizational climate*, employees' perceptions of management practices and procedures (James, 2008; Schneider, 2011). More specifically, implementation studies have shown that

organizations with cultures that are more supportive of employees are more effective in implementing changes in the organization, including new interventions.

Implementation science literature has also highlighted individual-level factors reflecting the implementation climate and the organization's readiness for change. These factors include *change valence* (Weiner, 2009), whether employees think the change being implemented is personally beneficial or worthwhile, and *change efficacy* (Weiner, 2009), the degree to which employees think they are capable of implementing a change. Attitudes towards TIC intervention can be influenced by a number of organizational characteristics (i.e. culture and climate of an organization (Aarons, 2006), leadership (Aarons, 2007), and level of support (Klein, 2001) for the intervention that is provided by the organization) and provider level factors (i.e. attitudes and beliefs (Ajzen, 2005), self-efficacy and support (Bandura, 1982). Thus, it is critical to assess not only the intervention itself, but also the context in which the intervention is delivered. In the current study, we drew from Aarons' EPIS model with respect to distinguishing between provider- (i.e. individuals' attitudes and beliefs) and organizational- (i.e. organization culture and climate) level factors that can support or hinder implementation of TIC policies and practices. We also assessed additional factors associated with implementation success from Feldstein and Glasgow's PRISM model, specifically the perceived compatibility and complexity of TIC to participants' work, barriers of frontline staff, and ability to observe results.

1.2.2 Application of Mixed Methods

Mixed methods entails the collection and analysis of both qualitative and quantitative data (Johnson, 2007). The use of mixed methods approaches to evaluate intervention implementation provides a nuanced perspective and insight into the factors influencing adoption of an intervention. The rationale for using mixed method designs in implementation research is that qualitative methods can explore and obtain depth of understanding as to the reasons for implementation success or failure or to identify strategies for facilitating implementation, while quantitative methods can test and confirm hypotheses based on an existing conceptual model and obtain breadth of understanding of predictors of successful implementation (Palinkas, 2011). Moreover, qualitative inquiry complements quantitative methods by providing detailed descriptions or narratives regarding the process of implementation, as well as participants' perceptions and experiences in implementing an intervention (Creswell, 2011). Several mixed methods research designs have been used in health sciences research. This proposal applies a convergent mixed methods design wherein the intent is to merge concurrent quantitative and qualitative data and compare the two sets of data and results to address study aims and best understand participants' experiences with an intervention (Dowding, 2013).

1.2.3 Trauma Response Pathway

Children with complex trauma often end up in multiple child-serving systems (e.g., mental health, child welfare, education, juvenile justice) with needs that are both complex and severe (SAMHSA, 2014). Furthermore, professionals in each system may

use different frameworks to understand children and have varying degrees of understanding of complex trauma (Taylor, 2005). Variations in knowledge and approaches can subsequently undermine services to youth with the result that youth with a background of complex trauma are at risk of being misunderstood, misdiagnosed, and subsequently, mistreated. Therefore, youth-serving agencies that work with youth populations that have a history of ACEs should collaborate to develop a common framework for assessment of complex trauma that can still work within the context of each particular agency.

Figure 2 provides a framework for understanding where various youth-service agencies fit along the trajectory of a child facing trauma, to being connected to the appropriate service and support systems to facilitate recovery from trauma. The framework incorporates Bronfenbrenner's ecological model that addresses the multiple levels of influence affecting youth development including the *microsystem* (individual), *mesosystem* (i.e. family, neighborhood, school), *exosystem* (i.e. community, friends/neighbors, extended family), and *macrosystem* (i.e. customs, laws, values; Bronfenbrenner, 1979). Such a comprehensive framework can improve communication across providers and caregivers, and ultimately, improve the care of the children and families entrusted to these systems (Taylor, 2005). The trauma response pathway informs the design of the proposed study by highlighting the key role of multiple providers who interact with trauma-affected youth. Moreover, this proposal draws on this framework by recognizing that not only do these agents serve as responders to youth who have faced trauma; they also serve as potential gatekeepers and/or links to TIC services and social support systems that can in turn, help youth heal from trauma.

1.2.4 Positive Youth Development

Positive Youth Development (PYD) draws from the ecological and systems theories previously described and recognizes the importance of environmental influences in supporting healthy development in youth. From this framework, successful development is not viewed as the absence of risk factors, but as the presence of positive personal and contextual attributes that enable youth to reach their full potential as productive and engaged adults (Lerner, 2003). PYD focuses on protective factors (assets) and youth interaction with a multilayered, ecological web referred to as a person-context relationship (Lerner, 2005; Pittman, 2001). One of the core competencies in PYD that best characterize a psychologically well-adjusted youth is prosocial connectedness. Prosocial connectedness is used to describe youth affiliations across a range of socialization domains, including families, schools, and communities wherein youth perceive that they are cared for, acknowledged, trusted, and empowered (Guerra, 2008). Thus, PYD rejects the idea of focusing narrowly on individual pathology, and instead, emphasizes the role that social and community strengths and resources play in healthy child and adolescent development (Catalano, 2004; Damon, 2004).

A literature review on populations served by the Administration on Children, Youth and Families (ACYF) who have faced childhood trauma found that caring adults beyond the nuclear family, such as older individuals in the community, as well as a caring community, are among the top ten protective factors across ACYF populations (ACYF, 2013). The presence of a caring adult is related to numerous positive outcomes for children and youth including greater resilience, lower stress, less likelihood of arrest, reductions in homelessness, higher levels of employment, less delinquent conduct,

favorable health, and less suicidal ideation (Ahrens, 2008; Courtney, 2009; Drapeau, 2007; Farineau, 2011; Geenen, 2007; Haight, 2009; Kirk, 2011; Osterling, 2006). This proposal draws on the PYD framework by examining how providers from youth-serving organizations can contribute to the healthy development of youth with a history of trauma by both recognizing the signs of trauma and by connecting youth to the appropriate treatment and support systems to heal from their experiences.

1.3 Specific Aims

Study Aim 1: *To evaluate* ***agency personnel participants'*** *subjective* ***changes in knowledge about trauma, attitudes towards traumatized individuals, and beliefs in capacity to provide or make referrals to trauma services*** *after completion of the nine-month TIC training intervention and agency implementation of TIC policies and/or practices.*

Hypothesis 1A: There will be a significant increase in participants' knowledge, positive attitudes, and positive beliefs upon completion of the training.

Study Aim 2: *To assess self-reported* ***changes in organizational culture and provider-level compassion satisfaction and fatigue*** *of* ***agency personnel*** *after completion of a nine-month TIC intervention that included agency implementation of TIC policies and practices.*

Hypothesis 2A: There will be a significant improvement in organizational culture, significant increase in compassion satisfaction, and significant decrease in compassion fatigue upon completion of the training.

Study Aim 3: *To obtain participants' perspectives and to explore how participation in a nine-month, trauma-informed care intervention would influence* ***participants' and organizations' capacity to refer traumatized youth to trauma-specific services.***

Study Aim 3A: To evaluate participants' perspectives regarding factors external to intervention that could support or hinder traumatized youth from being able to access appropriate services.

1.4 Overview of Chapters

1.4.1 Chapter 2 overview

Chapter 2 introduces the reader to the Baltimore City Health Department's (BCHD) nine month, trauma-informed care (TIC) training intervention and mixed methods study that was conducted concurrently with the intervention. All 90 participants in the intervention were eligible to participate in the study; comprehensive recruitment efforts yielded a sample of 88 study participants. Self-report questionnaires were completed by participants at the beginning (October 2015) and at the conclusion (June 2016) of the intervention. A subsample of study participants (n=16) were recruited for semi-structured interviews, which were conducted shortly after the conclusion of the intervention (July-August 2016).

Data from both the pre-post surveys and semi-structured interviews were analyzed to address Aim 1. This study examined changes in knowledge about trauma, attitudes towards traumatized individuals, and beliefs about one's capacity to provide TIC services in response to the intervention. Paired t-tests were conducted to examine if there were any significant differences in mean scores of participants' knowledge, attitudes, and

beliefs about TIC at the beginning and conclusion of the nine-month intervention training. For the qualitative data, the constant comparative method was used to develop themes related to what participants found useful about the training and what improvements to the training they would propose.

The study presented in Chapter 2 is under review at American Journal of Orthopsychiatry.

1.4.2 Chapter 3 overview

The study presented in Chapter 3 evaluates changes in provider-and organizational-level factors associated with TIC implementation using the quantitative and qualitative data described in the Chapter 2 overview. Paired t-tests were used to examine whether there would be a significant change in organizational factors (i.e. safety climate and morale, work environment factors such as managerial support, and team factors such as teamwork climate and collaboration) and provider level factors (i.e. compassion satisfaction, burnout, and secondary traumatic stress) upon completion of the intervention. The constant comparative method was used to develop conceptualizations about responses related to how the intervention influenced participants' organizational culture and climate, with additional attention to the impact on organizational safety.

The study presented in Chapter 3 is under review at BMC Health Services Research.

1.4.3 Chapter 4 overview

Chapter 4 addressed Aim 3 using qualitative data from the semi-structured interviews described under the Chapter 2 Overview. Sixteen participants from the training intervention were interviewed; the majority came from the social services sector (75.0%), while other participants came from law enforcement (12.5%) and other government agencies (12.5%). The qualitative approach of this study allowed for an understanding of the contextual factors associated with referrals from the perspectives of intervention participants. The constant comparative method was applied to examine how the intervention influenced participants' organizational capacity to provide treatment to traumatized youth or to make referrals to trauma-related services, as well as perceived barriers and facilitators to traumatized youth being able to access services.

The study presented in Chapter 4 is under review at Children and Youth Services Review.

1.4.4 Chapter 5 overview

Chapter 5 highlights key findings from each chapter, summarizes study strengths and limitations, and discusses the public health implications of this research on policy and practice, as well as the significance of this study on future research.

1.5 References

Aarons, G.A., Sawitzky, A.C. (2006). Organizational climate partially mediates the effect of culture on work attitudes and staff turnover in mental health services. *Adm Policy Ment Health and Ment Health Serv Res,* 33, 289-301.

Aarons, G.A. & Palinkas, L.A. (2007). Implementation of evidence-based practice in child welfare: Service provider perspectives. *Adm Policy Ment health and Ment Health Serv Res*, 34, 411-419.

Aarons, G.A., Hurlburt, M. & Horwitz, S.M. (2011). Advancing a Conceptual Model of Evidence-Based Practice Implementation in Public Service Sectors. *Administration and Policy in Mental Health*, 38, 1-23.

Ahrens, K. R., DuBois, D. L., Richardson, L. P., Fan, M.–Y. Fan, & Lozano, P. (2008). Youth in foster care with adult mentors during adolescence have improved adult outcomes. *Pediatrics*, 121(2), e246–52.

Ajzen, I. & Fishbein, M. (2005). The influence of attitudes on behavior. In: Albarracin D, Johnson BT, Zanna MP, eds. *The Handbook of Attitudes* (pp. 173-222). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

American Psychological Association Presidential Task Force on Posttraumatic Stress Disorder and Trauma in Children and Adolescents (2008). *Children and Trauma: Update for Mental Health Professionals*. Retrieved from: http://www.apa.org/pi/families/resources/update.pdf

Anda, R.F., Felitti, V.J., Walker, J., Whitfield, C.L., Bremner, J.D., Perry, B.D., Dube, S.R., Giles, W.H. (2006). The Enduring Effects of Abuse and Related Adverse Experiences in Childhood: A Convergence of Evidence from Neurobiology and Epidemiology. *European Archives of Psychiatry and Clinical Neurosciences*, 256, 3, 174-86.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *Am Psychol*, 37, 122-147.

Borgatti, S.P. (1989). *Anthropac 2.6: Provisional documentation*. Columbia, S.C.: University of South Carolina, Department of Sociology, Stephen P. Borgatti.

Bronfenbrenner, U. (1979). The ecology of human development. Cambridge, MA: Harvard University Press.

Bloom, S. L., and Farragher, B. (2011). *Destroying sanctuary: the crisis in human services delivery systems*. New York: Oxford University Press.

Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2004). Positive Youth Development in the United States: Research findings on

evaluations of Positive Youth Development programs. *Annals of the American Academy of Political and Social Science*, 591(1), 98–124.

Child & Adolescent Measurement Initiative (2014). *Lifelong health, school success and adverse childhood experiences among Maryland & Baltimore's children.* Data Resource Center, supported by Cooperative Agreement 1-U59-MC0680-01 from the U.S. Department of Health & Human Services. Health Resources & Services Administration, Maternal & Child Health Bureau.

Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., & Van der Kolk, B. (2005). Complex trauma, *Psychiatric annals*, *35*(5), 390-398.

Courtney, M. E., & Lyons, S. (2009). Mentoring relationships and adult outcomes for foster youth in transition to adulthood. Paper session presented at the 13th annual meeting of the Society for Social Work and Research, New Orleans, LA.

Covington, S. (2008) "Women and Addiction: A Trauma-Informed Approach." *Journal of Psychoactive Drugs, SARC Supplement* 5, 377-385.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research.* (2nd ed.). Thousand Oaks, CA: Sage.

Damaschroder, L.J., Aron, D.C., Keith, R.E., Kirsh, S.R., Alexander, J.A., & Lowery, J.C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation Science*, 7(4), 50.

Damon, W. (2004). What is Positive Youth Development? ANNALS of the American Academy of Political and Social Science, 591(1), 13–24.

Dowding, D. (2013). Best Practices for Mixed Methods Research in the Health Sciences John W. Creswell, Ann Carroll Klassen, Vicki L. Plano Clark, Katherine Clegg Smith for the Office of Behavioral and Social Sciences Research; Qualitative Methods Overview Jo Moriarty. *Qualitative Social Work*, 12(4), 541-545.

Dozier, M., Cue, K.L., and Barnett, L. (1994). Clinicians as caregivers: Role of attachment organization in treatment. *Journal of Consulting and Clinical Psychology*, 62(4), 793-80.

Drapeau, S., Saint–Jacques, M. C., Lépine, R., Bégin, G., & Bernard, M. (2007). Processes that contribute to resilience among youth in foster care. *Journal of Adolescence*, 30(6), 977–99.

Driessen, M., Schulte, S., Luedecke, C., Schaefer, I., Sutmann, F., Ohlmeier, M., et al. (2008). Trauma and PTSD in patients with alcohol, drug, or dual dependence: A multi-center study. *Alcoholism: Clinical & Experimental Research,* 32, 481–488.

Dupont, W.D., & Plummer, W.D. (1997). PS power and sample size program available for free on the internet. *Controlled Clinical Trials*, 18, 2.

Fallot, R. and Harris, M. (2006). *Trauma-Informed Services: A Self-Assessment and Planning Protocol*. Community Connections.

Farineau, H. M., & McWey, L. M. (2011). The relationship between extracurricular activities and delinquency of adolescents in foster care. *Children and Youth Services Review*, 33(6), 963–68.

Feldstein, A.C. & Glasgow, R.E. (2008). A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. *Jt Comm J Qual Patien Saf,* 34, 4, 228-243.

Felitti, G., Anda, R., Nordenberg, D., et al. (1998). Relationship of child abuse and household dysfunction to many of the leading cause of death in adults: The Adverse Childhood Experiences Study. *American Journal of Preventive Medicine*, 14, 245-258.

Fixsen D.L., Naoom, S.F., Blasé, K.A., Friedman, R.M., Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: National Implementation Research Network: University of South Florida.

Ford, J.D. (2013). Treatment of complex trauma: A sequenced, relationship-based approach. New York, NY, US: Guilford Press.

Gallo J.J & Lee S.Y. (2016). Mixed methods in behavioral intervention research. In: Gitlin LN, Czaja SJ, eds. *Behavioral Intervention Research* (pp195-211). New York, New York: Springer Publishing Company.

Geenen, S., & Powers, L. E. (2007). Tomorrow is another problem: The experiences of youth in foster care during their transition into adulthood. *Children and Youth Services Review*, 29(8), 1085–1101.

Glasgow, R.E., Vogt, T.M., Boles, S.M. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health*, 89, 9, 1922-1927.

Glaser, B.G. & Strauss, A.L. (1967). The Discovery of Grounded Theory: Strategies for Qualitative Research. New York, NY: Aldine Publishing.

Glisson, C & James, L.R. (2002). The cross-level effects of culture and climate in human service teams. *J Organ Behav*, 23, 767-794.

Glisson, C. & Schoenwald, S.K. (2005). The ARC organizational and community intervention strategy for implementing evidence-based children's mental health treatments. *Mental health services research*, 7(4), 243-259.

Green, J.G., McLaughlin, K.A., Berglund, P.A., Gruber, M.J., Sampson, N.A., Zaslavsky, A.M., et al. (2010). Childhood adversities and adult psychiatric disorders in the National Comorbidity Survey Replication I: Associations with first onset of DSM-IV disorders. *Archives of General Psychiatry*, 67, 113–123.

Greenhalgh, T., Robert, G., Macfarlane, F. Bate, P., Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Q*, 82, 581—629.

Guarino, K., Soares, P., Konnath, K., Clervil, R., and Bassuk, E. (2009). *Trauma-Informed Organizational Toolkit*. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, and the Daniels Fund, the National Child Traumatic Stress Network and the W.K.Kellogg Foundation.

Guerra, N. G., & Bradshaw, C. P. (2008). Linking the prevention of problem behaviors and positive youth development: Core competencies for positive youth development and risk prevention. In N. G. Guerra & C. P. Bradshaw (Eds.), Core competencies to prevent problem behaviors and promote positive youth development. *New Directions for Child and Adolescent Development*, 122, 1–17.

Guetterman T.C., Fetters M.D., & Creswell J.W. (2015). Integrating Quantitative and Qualitative Results in Health Science Mixed Methods Research Through Joint Displays. *Ann Fam Med*, 13, 6, 554-61.

Haight, W., Finet, D., Bamba, S., & Helton, J. (2009). The beliefs of resilient African American adolescent mothers transitioning from foster care to independent living: A case-based analysis. *Children and Youth Services Review*, 31, 53–62.

Hamblen, J. (2001). PTSD in Children and Adolescents. White River Junction, VT: National Center for Post-Traumatic Stress Disorder.

Heim, C., Newport, D.J., Mletzko, T., Miller, A.H., Nemeroff, C.B. (2008). The link between childhood trauma and depression: Insights from HPA axis studies in humans. *Psychoneuroendocrinology*, 33, 693–710.

Hopper, K., Bassuk, E.L., Olivet, J. (2010). Shelter from the storm: Trauma-informed care in homelessness services settings. *The Open Health Services and Policy Journal*, 3, 80–100.

Hummer, V. and Dollard, N. (2010). *Creating Trauma-Informed Care Environments: An Organizational Self- Assessment. (part of Creating Trauma-Informed Care Environments curriculum)* Tampa FL: University of South Florida.

James, L.R., Choi, C.C., Ko, C., et al. (2008). Organizational and psychological climate: A review of theory and research. *Eur J Work Organ Psy*,17, 5-32.

Kirk, R., & Day, A. (2011). Increasing college access for youth aging out of foster care:

Evaluation of a summer camp program for foster youth transitioning from high school to college. *Children and Youth Services Review*, 33(7), 1173–80.

Klein, K.H., Conn, A.B., & Sorra, J.S. (2001). Implementing computerized technology: An organizational analysis. *J Appl Psychol*, 86, 811-824.

Kilpatrick, D., Resnick, H., Milanak, M., Miller, M., Keyes, K., & Friedman, M. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *Journal of Traumatic Stress,* 26, 537-547.

Landsverk, J., Hendricks Brown, C., Chamberlain, P., Palinkas, L., Mitsunori, O., Czaja, S., Goldhaber-Fiebert, J.D., Rolls Reutz, J., & Horwitz, S.M. (2012). Design and analysis in dissemination and implementation research. In Brownson, R.C., Colditz, G.A., & Proctor, E.K. (Eds), *Dissemination and Implementation Research in Health: Translating Science to Practice* (pp. 225-260). New York: Oxford University Press.

Lerner, R.M., Lerner, J., Almerigi, J. B., Theokas, C., Phelps, E., & Gestsdottir, S. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth grade adolescents: Findings from the first wave of the 4–H study of positive youth development. *Journal of Early Adolescence*, 25, 17–71.

Malterud, K. (2001). Qualitative research: standards, challenges, and guidelines. *Lancet*, 358:483-488.

Najavits, L.M. (2002). Seeking Safety: A Treatment Manual for PTSD and Substance Abuse. New York: Guilford Press.

Najavits, L.M., Harned, M.S., Gallop, R.J., Butler, S.F., Barber, J.P., Thase, M.E., et al. (2007). Six-month treatment outcomes of cocaine-dependent patients with and without PTSD in a multisite national trial. *Journal of Studies on Alcohol and Drugs*, 68, 353–361.

National Child Traumatic Stress Network Systems Integration Working Group (2005). Helping children in the child welfare system heal from trauma: A systems integration approach.

Ottoson, J.M. & Hawe, P., eds. (2009). *Knowledge utilization, diffusion, implementation, transfer and translation: Implications for evaluation*. Vol. 124. San Francisco: Jossey-Bass and the American Evaluation Association.

Osterling, K. L., & Hines, A. M. (2006). Mentoring adolescent foster youth: promoting resilience during developmental transitions. Child & Family Social Work, 11(3), 242–53.

Palinkas, L. A., Aarons, G. A., Horwitz, S., Chamberlain, P., Hurlburt, M., & Landsverk, J. (2011). Mixed Method Designs in Implementation Research. *Administration and Policy in Mental Health*, *38*, 1, 44–53.

Penney, D. & Cave, C. (2012). *Becoming a Trauma-Informed Peer-Run Organization: A Self-Reflection Tool* (2013). Adapted for Mental Health Empowerment Project, Inc. from *Creating Accessible, Culturally Relevant, Domestic Violence- and Trauma-Informed Agencies*, ASRI and National Center on Domestic Violence, Trauma and Mental Health.

Proctor, E.K. & Brownson, R.C. (2012). Measurement issues in dissemination and implementation research. In Brownson, R.C., Colditz, G.A., & Proctor, E.K. (Eds), *Dissemination and Implementation Research in Health: Translating Science to Practice* (pp. 261-280). New York: Oxford University Press.

Romney, A. K., Weller, S. C., & Batchelder, W. H. (1986). Culture as consensus: A theory of culture and informant accuracy. *American Anthropologist*, 88: 313–333.

SAMHSA's Trauma and Justice Strategic Initiative, "SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach," July 2014. Date retrieved: 7 July 2015. Retrieved from http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf.

Schein, E. (2004). *Organizational culture and leadership*. Third edition. San Francisco: Jossey-Bass.

Schneider, B., Ehrhart, M.G., Macey, W.A. (2011). Organizational climate research: Achievements and the road ahead. In Ashkanasy NM, Wilederom CPM, Peterson MF, eds. *Handbook of Organizational Culture and Climate* (pp 29-49). Newbury Park, CA: Sage.

Sexton, J.B., Helmreich, R.L., Neilands, T.B., Rowan, K., Vella, K., Boyden, J., Roberts, P.R., & Thomas, E.J. (2006). The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC Health Services Research*, 6(1): 44.

Schafer, J.L. & Graham, J.W. (2002). Missing data: Our view of the state of the art. *Psychol Methods*, 7, 2, 147-177.

Shonkoff, J., Garner, A., Siegel, B., Dobbins, M., Earls, M., & Garner, A. et al. (2011). The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics, 129*(1), e232-e246.

Spitzer, C., Vogel, M., Barnow, S., Freyberger, H.J., Grabe, H.J. (2007). Psychopathology and alexithymia in severe mental illness: The impact of trauma and posttraumatic stress symptoms. *European Archives of Psychiatry and Neurological Sciences*, 257, 191–196.

Stamm, B. H. The ProQOL manual. The professional quality of life scale: Compassion satisfaction, burnout & compassion fatigue/secondary trauma scales. 2005. Date retrieved: 15 October 2015: Retrieved from http://www.compassionfatigue.org/pages/ProQOLManualOct05.pdf.

Teicher, M.H. (2002). Scars that won't heal: The neurobiology of child abuse. *Scientific American*, 286, 68–75.

van Buuren, S., Boshuizen, H.C., Knook, D.L. (1999). Multiple imputation of missing blood pressure covariates in survival analysis. *Stat Med*, 18, 6, 681-694.

Weiner, B.J. (2009). A theory of organizational readiness for change. *Implement Sci*, 19, 67.

CHAPTER 2. A MIXED METHODS ASSESSMENT OF THE USEFULNESS OF BALTIMORE CITY HEALTH DEPARTMENT'S TRAUMA-INFORMED CARE TRAINING INTERVENTION

Abstract

Youth exposure to trauma is a highly prevalent public health problem in the United States, particularly in urban cities. Although trauma-informed care (TIC) training of service providers to address this challenge is increasing nationwide, we lack empirical evidence regarding the feasibility and acceptability of cross-organizational TIC training, including perspectives of training participants. The purpose of our study was to evaluate participating service personnel self-reported changes in knowledge about trauma, attitudes towards traumatized individuals, and beliefs in capacity to provide or make referrals to trauma services after completion of the TIC intervention. Intervention participants completed a pre-post quantitative survey assessing TIC-related knowledge, attitudes, and beliefs. A subset of participants were recruited and interviewed using a semi-structured interview format. Mixed methods were used to evaluate the intervention's impact on participants' knowledge about trauma, and to understand participants' experience in the training. Quantitative results revealed significant improvements in TIC-related knowledge and attitudes. Five themes emerged in interviews with participants regarding the usefulness of the intervention; namely, a valuable framework for understanding TIC, useful lessons learned from other participants, need for outreach to upper-level management, a lack of real-life applicability, and a lack of guidance regarding next steps. This study supports the

feasibility and acceptability of the intervention as a starting point for enhancing service providers' capacity to address traumatized youth.

2.1 Introduction

Approximately one quarter of youth in the U.S. have experienced two or more traumatic events, with even higher rates for youth in urban areas like Baltimore City (30.7%) (HHS, 2014). Service professionals who interact with youth—including school staff, social workers, and law enforcement—can serve as potential gatekeepers of trauma services. However, many service professionals are ill prepared to identify traumatized youth or to refer youth to treatment since addressing trauma in youth has not typically been part of their occupation (Taylor, 2005).

One promising approach to promoting referral of youth with a history of trauma to appropriate trauma service and support systems, and thereby improving mental and physical health outcomes, is educating youth service providers in trauma-informed care. Trauma-informed care (TIC) is a strengths-based service delivery approach grounded in an understanding of and responsiveness to the impact of trauma that emphasizes physical, psychological, and emotional safety for both providers and survivors, and that creates opportunities for survivors to rebuild a sense of control and empowerment (Hopper, 2010).

Availability of TIC trainings is improving, but more information is needed about feasible and acceptable training approaches and evidence for feasibility and acceptability. First, many interventions focus on training one service sector, particularly the child welfare system (Taylor, 2005; Kramer, 2012; McMahon-Howard, 2013; Nicola, 2013; Fraser, 2014; Lang, 2016; Suzanne, 2016). Training focused on one service sector does not provide opportunities for cross-sector collaboration with other fields such as healthcare, education, law enforcement, and nonprofit organizations that also interact

with traumatized youth. As a result, professionals in each system may use different frameworks to understand children and may have varying degrees of understanding of complex trauma (Taylor, 2005). Variations in knowledge and approaches can subsequently undermine services to youth, as youth with a background of complex trauma are at risk of being misunderstood, misdiagnosed, and inadequately treated. Second, few assessments and related peer-reviewed publications of TIC trainings include professionals outside the child welfare system (Holmes, 2015; Anderson, 2015; Perry, 2016).

After the Baltimore unrest in April 2015, the Baltimore City Health Department, together with its quasi-governmental partner Behavioral Health System Baltimore, developed the Healing Baltimore initiative with support from the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Mental Health Services, National Center for Trauma Informed Care. An important commitment to Healing Baltimore was the pledge by former Baltimore City Mayor Stephanie Rawlings-Blake in July 2015 to have all frontline city workers trained in TIC, making Baltimore the first U.S. city aiming to provide TIC training for all government employees.

2.1.1 Pilot Study

A post-training survey was administered to 957 participants of an introductory TIC didactic training session in Baltimore City through funding provided by the SAMHSA Center for Mental Health Services. The one day training session provided participants with a general overview of trauma, including the signs and symptoms of trauma, and the short- and long-term consequences that trauma can have on an

individual's cognitive and behavioral development. Four types of agencies participated: government social services, government health and education, other government agencies, including law enforcement, and nonprofit organizations. All agencies invited to the first phase of the Healing Baltimore initiative were responsive and attended the training, and preliminary data suggest the training was positively received by training participants who completed surveys. Findings from the post-training survey suggested that one of the key takeaways from the pilot program was identification of client-oriented solutions, specifically strengths-based approaches, as a feasible starting point for providing trauma-informed services. The majority of government workers, including those without a mental health and/or social work background (i.e. police officers, 311/911 operators) reported having learned from the training and having motivations to apply lessons learned towards their work with youth and families at their respective agencies. Preliminary results were used by BCHD staff to guide the development of a more comprehensive 9-month intervention, which is the focus of the current study.

2.1.2 Training Intervention

Agencies that participated in the initial introductory TIC didactic training were invited to participate in the second half of the initiative, a nine-month implementation training program facilitated by consultants identified by SAMHSA's NCTIC who have expertise in TIC implementation. All the agencies that participated in the introductory didactic training were also represented in the implementation training stage of the initiative. Participants in the nine-month intervention were identified by their respective agencies to lead and implement trauma-informed approaches at their workplace. NCTIC

consultants provided an initial two-day training (Oct 2015) reviewing key points from the introductory TIC didactic, with a majority of the training dedicated to technical assistance to participant agencies in implementing the six TIC principles outlined by SAMHSA (described below). Upon completion of the initial two-day training, participants reached consensus with others from their respective agencies and on behalf of the agency they represented, signed a joint Memorandum of Understanding (MOU) with BCHD and BHSB. The MOU delineated expectations of full participation and commitment to full implementation of three changes to policies and/or practices that are trauma-informed by the end of the training program (Jun 2016). The MOU also included agencies' commitment to continuing to implement trauma-informed approaches beyond the nine-month implementation training program.

Although SAMHSA allocated a significant amount of funding and resources towards TIC training nationwide, no formal evaluation of this intervention has been conducted. Thus, we lack empirical evidence regarding the feasibility and acceptability of cross-organizational TIC training, including improvement of participants' knowledge and attitudes, or the perspectives of training participants. Our study goals were twofold. First, we evaluated agency personnel self-reported changes in knowledge about trauma, attitudes towards traumatized individuals, and beliefs in capacity to provide or make referrals to trauma services after completion of the nine-month TIC intervention and agency implementation of TIC policies and practices. Based on a priori knowledge about TIC trainings (Taylor, 2005; Kramer, 2012; McMahon-Howard, 2013; Fraser, 2014; Suzanne, 2016), we hypothesized that there would be a significant improvement in

participants' knowledge, positive attitudes, and positive beliefs upon completion of the training.

Second, our study obtained participants' perspective of the training grounded in a sequential explanatory mixed methods design (Gallo, 2016). Quantitative studies on the usefulness of TIC training -- specifically the impact of training on participants' TIC-related knowledge, attitudes, and beliefs -- employ established standards for measuring these domains (Fallot & Harris, 2006). However, quantitative data may miss contextual detail regarding the impact of the training on participants, or how the training might be improved. Qualitative methods complement quantitative methods by providing detailed descriptions or narratives regarding the impact of the training, including trainees' perceptions and experiences in participating in the intervention (Creswell, 2011). By applying a mixed methods approach to evaluating the training intervention, we aimed to gain a better understanding of participants' experiences with the training and how the training could be improved (Dowding, 2013).

2.2 Methods

2.2.1 Pre-post design

Data came from pre- and post-surveys administered by BCHD and BHSB staff at the beginning (October 2015) and at the conclusion (June 2016) of the nine-month implementation training. The pre- and post-surveys were administered to Baltimore City government agency and nonprofit professionals (N=90). An online version of the survey was administered to participants not present at either the first or last training of the intervention. Participants provided informed consent to BCHD and their respective

agencies, and agreed to participate for the entire duration of the intervention. Participants were compensated for their time and participation by their respective agencies.

2.2.2 Semi-structured interviews

Semi-structured interviews were conducted two months following the intervention with a subset of participants in the intervention. Participants for the semi-structured interviews were recruited using direct contact and word-of-mouth. Participants from Law Enforcement and Social Services were specifically targeted during recruitment for the interviews. Group interviews with BCHD, BHSB, SAMHSA collaborators, and participating agencies suggested that Law Enforcement and Social Services greatly differed on several factors, including openness and readiness to adopt TIC policies and practices. In preliminary studies of the BCHD TIC training initiative (Damian, 2015), participants from Social Service sectors reported prior exposure to TIC training whereas Law Enforcement participants reported a lack of opportunities to learn about TIC principles in their field. Thus, we anticipated that interviews with key informants from Law Enforcement and Social Services, two distinctly different sectors with significant interactions with Baltimore City youth, would provide rich perspectives on the effects of the current TIC training. BCHD and BHSB staff members overseeing the TIC intervention described the study to all trainees who met the inclusion criteria, asked them if they were interested in learning more about the study, and shared the contact information of trainees with the research team. The research team member explained the study, clarified questions about the study's intent and human participant protection, and obtained informed consent. Interviews were digitally recorded and transcribed. Any

identifying information was removed in the transcription process. The Institutional Review Board at the Johns Hopkins Bloomberg School of Public Health approved all study procedures.

2.2.3 Measurement strategy

This study focuses on a subset of measures from the pre-post surveys regarding changes in knowledge, beliefs, and attitudes in response to the intervention (Fallot & Harris, 2006).

Trauma-Informed Knowledge, Attitudes and Beliefs of Providers Scale. Knowledge about trauma, attitudes towards traumatized individuals, and beliefs about one's capacity to provide trauma-informed care services were assessed with a 38-item self-report scale adapted from the Trauma-Informed Self-Assessment designed by the National Center on Family Homelessness and the Institute of Health Recovery (Fallot & Harris, 2006), both of which work with similar populations as the ones served by the BCHD TIC training participants. Questions addressing participants' beliefs about their capacity to provide trauma-informed care services were based on the six trauma-informed care principles outlined by SAMHSA: 1) Safety, 2) Trustworthiness and Transparency, 3) Peer Support, 4) Collaboration and Mutuality, 5) Empowerment, Voice, and Choice, and 6) Cultural, Historical and Gender Issues (See Table 2). Participants responded to all items using a Likert scale anchored with 1 *(strongly disagree)* to 5 *(strongly agree).* Reliabilities for the subscales were as follows: knowledge (Cronbach's alpha =.82), attitudes (Cronbach's alpha =.82), and beliefs (Cronbach's alpha =.89). Although this assessment has been recommended for provider assessment of TIC knowledge, attitudes,

and beliefs by the National Child Traumatic Stress Network (NCTSN), neither the reliability coefficients nor the use of this assessment has been reported elsewhere in the literature. For each of the scales, a mean score was computed such that higher scores indicated greater knowledge about trauma and more favorable attitudes and beliefs.

Other covariates. BCHD staff also administered a brief form to gather information about sociodemographic characteristics such as organization affiliation (i.e., government law enforcement, government social services, government health education and nonprofit), race/ethnicity (African-American, White, Latino, Asian or Pacific Islander, Other), gender, age (18-34, 35-44, 45-54, $\geq$ 55), educational attainment (high school, some college, college, graduate degree), role at agency/organization (direct service, management/administration), years in current position (< 1 year,1-5 years, 6-10 years, 11+ years), native of Baltimore City (yes/no), and participation in any prior TIC training (yes/no).

2.2.4 Interview strategy

The semi-structured interview guide covered four domains based on discussions with key informants (i.e. BCHD staff, SAMHSA training developers) and data from the pilot study described earlier that indicated what was of greatest importance to TIC training participants: 1) Usefulness of training, 2) General impact of training on organizational culture and climate, 3) Specific impact of training on organizational culture of safety, and 4) Impact of training on referrals of traumatize individuals. In this study we focus only on responses pertinent to usefulness of training.

2.2.5 Analysis strategy

Data were inspected and cleaned for any data entry errors and outliers prior to undertaking any analyses. Multiple imputation via Chained Equations (van Burren, 1999) was applied to missing data (>5% of values are missing). Paired t-tests were conducted to examine if there were any significant differences in mean scores of participants' knowledge, attitudes, and beliefs about TIC at the beginning and conclusion of the 9-month intervention training. Multiple regression analysis was employed to adjust for the potential confounding effects of the demographic variables noted earlier in this paper on the relationship between pre-post mean scores on knowledge, attitudes, and beliefs scale. STATA 13.0 was used for all statistical analyses.

For the qualitative data, we used the constant comparative method, moving iteratively beyond codes and text to derive themes related to what participants thought about the training. Originally developed for use in the grounded theory method of Glaser and Strauss (Glaser & Strauss, 1967), the constant comparative method involves taking one piece of data, such as a theme, and comparing it to the rest of the data to develop conceptualizations of the possible relations between various pieces of data (Wittink, 2006). Here we focused our attention on responses related to what participants found useful about the training and what improvements to the training they would propose.

2.3 Results

2.3.1 Sample characteristics

Of the 90 pre-survey respondents, we excluded 2 (2.2%) who only completed the sociodemographics questions but did not respond to the rest of the survey. Table 1 shows

the demographics of the analytic sample (N=88). The mean age of study participants was 43.0 years (standard deviation: 13.6) and most were women and African American. Most participants had at least a college degree and had previously participated in some form of trauma-informed care training. The sample for the semi-structured interviews (n=16) relied on participants who volunteered to be interviewed in depth. Of the participants that were interviewed, the majority were African-American (81.3%) and female (87.5%). Most interviewees were from the social services sector (75.0%), while other participants came from law enforcement (12.5%) and other government agencies (12.5%).

2.3.2 Changes in knowledge, attitudes and beliefs about TIC

A paired-samples t-test was conducted to compare post-training intervention scores on the quantitative survey to baseline scores (Table 3). The improvement in the pre/post training mean scores for knowledge about trauma and trauma-informed care principles ($M=3.19$, $SD=6.68$; $p<0.001$), as well as attitudes towards trauma survivors ($M=1.60$, $SD=5.67$; $p<0.01$), were significant. However, the difference in the pre/post training scores for beliefs about capacity to provide TIC was not statistically significant ($M=2.74$, $SD=25.25$; $p>0.05$).

2.3.3 What the participants said about the training

Open-ended items focused on perceived usefulness of training. Several themes emerged from careful review of the transcripts. We described five major themes (Table 4) selected for relevance to the main topics covered in the intervention. Two themes highlighting the usefulness of the training included the value of the SAMHSA framework

(reported by 44% of participants) and hearing other organizations discuss their practices, struggles, and challenges (reported by 13%). In several of the transcripts, participants expressed a belief in the value of the SAMHSA framework in providing a well-defined, concrete framework to support participants' understanding of trauma and TIC. Other participants expanded on the utility of the framework of going beyond "soft" aspects of trauma and TIC, to understand the etiology of trauma, how trauma affects people's perceived self-efficacy, and whether they have the will power to do something. Moreover, for other participants, the scientific findings regarding trauma and its consequences also provided credibility to participants' own traumatic experiences. Additionally, participants found it useful to participate in a training with multiple agencies from different sectors and as a result, see how the same strategies for TIC were being implemented across diverse work environments.

The themes regarding what was not useful in the training were consistent with survey findings on participants' beliefs about one's capacity to provide trauma-informed care services. The themes on why the training was not useful include lack of participation from upper-level management (reported by 19%), the intervention not having a whole lot of real-life applicability (reported by 31%), and the intervention did not provide next steps (reported by 31%). Some participants were frustrated because although they found the information very useful, without the policy makers and higher administration receiving training, no substantial change could be implemented or sustained. Several participants also expressed that the training was too broad and did not provide more concrete techniques tailored to their workplace. Participants expressed difficulty in making the connection between the training and their daily work. Lastly, although the

training covered various examples of successful TIC implementation, some participants still expressed uncertainty about plans post-training, particularly what TIC implementation looks like at their respective agencies.

2.4 Discussion

Our study highlights the changes that occurred among government and nonprofit service personnel (i.e., Health and Education, Law Enforcement, Social Services) who participated in a nine-month TIC implementation training and learning collaborative. The findings suggest that the intervention is a viable means of increasing participants' knowledge about trauma and trauma-informed care principles, as well as improving their attitudes towards individuals who have a history of trauma. More specifically, the training intervention enriched participants' understanding of the signs of trauma, and the short- and long-term biological, psychological, and social consequences of trauma. While change in beliefs about capacity to provide TIC was in a favorable direction, the pre- and post- scores were not significantly different from one another. Open-ended interviews with a sample of participants suggested that beliefs about capacity to deliver or refer for TIC did not change because participants were not empowered to make organizational change. While they discussed the value of the SAMHSA framework for understanding TIC and benefitted from hearing the perspectives of other participants, the need for management involvement, for real-life applications, and for training that provides concrete steps to take in the workplace was evident.

Before discussing the implications of the study for the field, the limitations deserve comment. First, the lack of a comparison group limits the ability to estimate

intervention effects. Recruitment of a comparison group for this study was not feasible since all City agencies participated in the TIC initiative and identifying comparison individuals at the participants' respective agencies was beyond our funding and timeline constraints. Second, the participants in the intervention were recruited by their respective agencies; therefore, their responses and any observed changes may not be representative of the other personnel at those agencies. Third, uniform criteria for selecting participants were not established across agencies because each participating agency decided for itself which members of its workforce would participate in the training intervention. Fourth, the measures relied on participants' self-report, which is subject to socially desirable responding. Fifth, the study was underpowered to detect and compare differences in treatment effects among the different service sectors represented in the current study. Although an item on participants' agency/organizational affiliation was included in the survey, only 25% of respondents answered this item. As the need for TIC receives greater attention, and more resources are subsequently allocated to train personnel outside the traditional healthcare system in TIC, future evaluation studies can be conducted to test differences in outcomes. Last, while the participants in the semi-structured interviews may not be representative of the intervention participants, the purpose of the open-ended interviews were exploratory, striving for depth of understanding and not representativeness.

Limitations notwithstanding, our mixed methods study shows that a training program can improve knowledge and attitudes towards TIC in a city-wide intervention, and points the way to how training can be improved. Our study also highlights the remaining gap between knowledge of trauma and attitudes towards individuals who have

experienced trauma, and the perceived capacity to establish a therapeutic relationship with trauma survivors or to refer them to appropriate trauma recovery and treatment services in the community. Certain subgroups within the sample may have experienced a significant improvement in beliefs about their capacity to provide TIC; however, the current study is underpowered to detect such an effect.

Our integrated, mixed methods design allowed us to use information derived from the semi-structured interviews to explain the data observed in the pre-post surveys and to point the way to improved training. The first theme regarding the utility of the TIC framework for understanding trauma was consistent with significant changes in participants' knowledge about trauma and attitudes towards traumatized individuals. The framework allowed participants to recognize the signs of trauma and unpack the biological, psychological, and social consequences of trauma throughout the life course of affected individuals. Additionally, the framework also helped participants see youth and families in the context of the trauma that these populations have faced. In other words, the framework not only helped participants be more trauma-informed by better understanding the impact of trauma on the youth and families they serve; it also allowed participants to be more trauma-informed by developing more empathy towards traumatized individuals.

The themes regarding the intervention's lack of real-life applicability and not providing the next step were consistent with the quantitative findings of no significant changes in participants' beliefs in their capacity to either provide or make referrals to trauma services. The quantitative survey items asked about participants' familiarity with community resources and treatment services. Participants' responses in the semi-

structured interviews reinforced quantitative findings regarding the uncertainty of how to connect what was learned during the intervention to their respective workplaces and daily interactions with traumatized youth and families. Thus, although the quantitative and qualitative results were consistent in suggesting that participants have improved their ability to recognize trauma and to empathize with traumatized individuals, the data also showed that participants still experience challenges in their capacity to respond adequately to the needs of youth and families that have experienced trauma.

The lack of significant changes in participants' beliefs in their capacity to either provide or make referrals to trauma services could also be related to the theme of not having upper-level management present during the intervention. Qualitative responses regarding the lack of leadership buy-in could explain why no significant changes in participants' beliefs in their capacity to either provide or make referrals to trauma services was observed in the quantitative data. Moreover, the qualitative data provided additional information not otherwise gleaned from the survey results alone. For example, the second theme on the usefulness of attending the training with other organizations highlighted the value of the cross-sector design of the intervention. As described in the beginning of this paper, the designers of the intervention were intentional about breaking down silos and bringing together providers from different sectors. Based on the qualitative data, the participants appeared to be in agreement with the intervention designers and found value in communicating with and learning from providers from other sectors. Not only did the cross-sector design of the intervention allow participants to learn about shared challenges; it also allowed participants who were less familiar with trauma and TIC to learn from the experiences of relatively more seasoned participants who have

already begun taking steps to implementing TIC policies and practices in their own organizations. The current study has several research, practice, and policy implications. Change takes time; it is possible that participants need more time to connect the dots, process the lessons learned from the intervention, and implement what was covered in the intervention at their respective workplaces. Therefore, future longitudinal studies should examine participants' perceived usefulness of the training over time. Conversely, longitudinal studies can also assess whether participants continue to retain knowledge about trauma and TIC and hold positive attitudes towards traumatized individuals over time. Future studies can also examine potential positive spillover effects of the intervention on the knowledge, attitudes, and beliefs of participants' colleagues who did not attend the training. In terms of implications on practice, the study supports the feasibility and acceptability of the intervention. However, the data suggests that the intervention should be treated as a starting point. Booster sessions can help sustain interest and improve capacity to better recognize and address TIC. Additionally, more work has to be done to engage upper-level management. One option is to provide grants that incentivize agencies/organizations' leadership to participate in TIC trainings.

Additionally, restructuring the intervention to meet the specific needs of different organizations should also be considered. The cross-sector, multi-agency design of the intervention was well received by participants. However, given both timeline and financial constraints, designers of the intervention should consider including breakout groups by sector in future iterations of the intervention. Breakout groups may provide participants with the space and time to discuss applications of the intervention and feasible ways of integrating TIC policies and practices specific to their workplace. Last,

this study highlights the importance of political leadership as implementation of the intervention was a joint effort by leadership from the Baltimore City Health Department and the Mayor's Office. Leadership from both these agencies successfully brought together individuals from different sectors, including providers outside the traditional healthcare system, which these individual entities would not be able to do on their own. Successful citywide, cross-sector engagement in a public health intervention requires funding. As noted in the beginning of this paper, the intervention described here was made possible by a SAMHSA grant. Additional federal funding is required to promote the sustainability and expansion of TIC across Baltimore. In doing so, federal funding can help Baltimore move forward in becoming a trauma-informed city and subsequently, serving as a model for other similarly situated cities across the U.S.

2.5 References

Aarons, G.A. & Sawitzky, A.C. (2006). Organizational climate partially mediates the effect of culture on work attitudes and staff turnover in mental health services. *Administration and Policy in Mental Health and Mental Health Services Research,* 33, 289-301.

Aarons, G.A. & Palinkas, L.A. (2007). Implementation of evidence-based practice in child welfare: Service provider perspectives. *Administration and Policy in Mental Health and Mental Health Services Research,* 34, 411-419.

Ajzen, I. & Fishbein, M. (2005). The influence of attitudes on behavior. In: Albarracin D, Johnson BT, Zanna MP, eds. *The Handbook of Attitudes* (pp. 173-222). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37, 122-147.

Child & Adolescent Measurement Initiative (2014). *Lifelong health, school success and adverse childhood experiences among Maryland & Baltimore's children.* Data Resource Center, supported by Cooperative Agreement 1-U59-MC0680-01 from the U.S. Department of Health & Human Services (HHS). Health Resources & Services Administration, Maternal & Child Health Bureau.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research.* (2nd ed.). Thousand Oaks, CA: Sage.

Dowding, D. (2013). Best Practices for Mixed Methods Research in the Health Sciences John W. Creswell, Ann Carroll Klassen, Vicki L. Plano Clark, Katherine Clegg Smith for the Office of Behavioral and Social Sciences Research; Qualitative Methods Overview Jo Moriarty. *Qualitative Social Work*, 12, 4, 541-545.

Fallot, R. & Harris, M. (2006). *Trauma-Informed Services: A Self-Assessment and Planning Protocol.* Community Connections.

Fraser, J. G., Griffin, J. L., Barto, B. L., Lo, C., Wenz-Gross, M., Spinazzola, J., . . . Bartlett, J. D. (2014). Implementation of a workforce initiative to build trauma-informed child welfare practice and services: Findings from the Massachusetts Child Trauma Project. *Children and Youth Services Review,* 44, 233-242.

Gallo J.J & Lee S.Y. (2016). Mixed methods in behavioral intervention research. In: Gitlin LN, Czaja SJ, eds. *Behavioral Intervention Research* (pp 195-211). New York, New York: Springer Publishing Company.

Hopper, K., Bassuk, E.L., Olivet, J. (2010). Shelter from the storm: Trauma-informed care in homelessness services settings. *The Open Health Services and Policy Journal*, 3,

80–100.

Kramer, T. L., Sigel, B. A., Conners-Burrow, N. A., Savary, P. E., & Tempel, A. (2013). A statewide introduction of trauma-informed care in a child welfare system. *Children and Youth Services Review,* 35, 1, 19-24.

McMahon-Howard, J., & Reimers, B. (2013). An evaluation of a child welfare training program on the commercial sexual exploitation of children (CSEC). *Evaluation and Program Planning,* 40, 1-9.

Ottoson, J.M. & Hawe, P., eds. (2009). *Knowledge utilization, diffusion, implementation, transfer and translation: Implications for evaluation*. Vol. 124. San Francisco: Jossey-Bass and the American Evaluation Association.

SAMHSA's Trauma and Justice Strategic Initiative (2014). *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach*. Retrieved from http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf.

Wittink, M.N., Barg, F.K., & Gallo, J.J. (2006). Unwritten Rules of Talking to Doctors About Depression: Integrating Qualitative and Quantitative Methods. *Annals of Family Medicine*, 4, 4, 302-309.

Taylor, N. & Siegfried, C. (2005). *Helping children in the child welfare system heal from trauma: A systems integration approach.* Retrieved from http://www.nctsnet.org/nctsn_assets/pdfs/promising_practices/A_Systems_Integration_Approach.pdf

Van Burren, S., Boshuizen, H.C., & Knook, D.L. (1999). Multiple imputation of missing blood pressure covariates in survival analysis. *Statistics in Medicine*, 18, 6, 681-694.

Table 2.1 Demographics of Analytical Sample in Baltimore City Health Department's Trauma-Informed Care Training Intervention (N=88).

(Data from pre-post surveys administered during Baltimore City Health Department's TIC Intervention.)

Characteristics	Total * N (%)
Age, in years	
Less than 35	26 (44.8)
35-44	14 (24.1)
45-54	10 (17.4)
55 or more	8 (13.8)
Gender	
Male	22 (25.3)
Female	65 (74.1)
Race/Ethnicity	
African-American or Black	60 (71.4)
White	21 (25.0)
Latino	1 (1.2)
Asian or Pacific Islander	1 (1.2)
Other	1 (1.2)
Highest level of education completed	
High school	5 (6.76)
Some college	12 (16.2)
College	20 (27.0)
Graduate degree	37 (50.0)
Role at agency/organization	
Direct service (Frontline)	39 (44.3)
Management/Administration	49 (55.7)
Years in current position	
Less than a year	18 (20.7)
1-5 years	37 (42.5)
6-10 years	14 (16.1)
11+ years	18 (20.7)
Baltimore City native	
Yes	37 (43.0)
No	49 (57.0)
Participated in any prior trauma-informed care training	
Yes	51 (60.0)
No	34 (40.0)

*Column percentages may not add up to 100% due to missing values

Table 2.2 Pairwise Comparisons of Pre-Post Changes in TIC Knowledge, Attitudes, and Beliefs. (Data from pre-post surveys administered during Baltimore City Health Department's TIC Intervention.)

	Baseline Mean (SD)	**Post Mean (SD)**	**Pre-post Difference (SD)**	**95% CI for Difference**	
TIC Knowledge	36.78 (4.80)	39.98 (4.48)	**3.19 (6.68)*** **	1.78	4.61
TIC Attitudes	28.26 (4.54)	29.86 (3.51)	**1.60 (5.67)** **	0.40	2.80
TIC Beliefs	86.05 (18.18)	88.78 (18.36)	2.74 (25.25)	-2.62	8.09

**p<0.01 ***p<0.001

Table 2.3 Themes of intervention usefulness identified through qualitative analysis of participant interviews *(n = 16).*

Theme	Sample quotes
Value of the SAMHSA framework	*When you're being told 'this is trauma-informed,' it's a soft (term) and abstract. People need something very concrete and a well-defined framework and I think that is what was provided in the trainings.* [social services #1]
	I found that very helpful as far as discussing trauma and being cognizant about trauma and being reflected on the children so from the parent's standpoint. And just learning about different tactics of calming the person down, realizing that they have trauma. [social services #4]
	I thought it was really helpful for me now working with this population and I understood that a lot of them had trauma and to really talk about the fight or flight, where they're living in their brain. Now I kind of read a lot of information and articles that come out about that and it really has helped me a lot just to put those pieces together about the trauma brain. [social services #10]
	(The training) lent credibility to my own work-related and personal experience at that time…in the understanding of how trauma affects the primitive brain and the physiology of it. [law enforcement #1]
	I found the hard data and the research a very helpful foundation. I think it was very helpful and productive to present what trauma does to the brain. For example, when the amygdala is activated, you're not going to be able to have a rational conversation. [law enforcement #2]
	The part in knowing how the brain works. It was still useful. [parks and rec #1]
	The training made me understand that something happened to them that probably made them feel or way the way that they are acting, learning how to understand people, and why they act or react the way that they do. [311 Operator #1]
Hearing other organizations discuss their practices, struggles, and challenges	*I found it most useful to hear other people share the same challenges that we have. You know, the same frustrations, the same commitment to being trauma-informed, yet how challenging that can be.* [social services #2]
	It was helpful that there were other agencies there. So it wasn't just from one perspective. I was able to see how other people are implementing these same strategies in their programs. So just

	siting listening to different perspectives, I found that helpful. [social services #8]
There has to be some kind of outreach to upper-level management	*That was frustrating was to realize that this is my life work and so to find that the people that needed to be in the room weren't really in the room with me was a little frustrating because we have your front line people, your direct care people, and even your middle management people, but you really didn't have the upper-level administrative leadership in the room and the buy in. My concern was that this is going to be another one of those types of trainings that you go in and then nothing really changes.* [social services #1]
	I don't know what the incentive is for them (upper-level leadership) to do this is so I think that the buy in for them is important and the recognition that this is where the Federal government is wanting to go in terms of operations and strategies and treatment modalities and program modality... I don't think people really realize that this is significant. [social services #8]
	I think if there's some way they (the trainers) could have some kind of outreach to, you know, training or specifically for heads of organizations. You know, rather than relying on like a case manager to convince the upper administration. [social services #12]
It didn't have a whole lot of real-life applicability	*I think that the training introduces the concept of trauma and provides a framework, but it does not provide the techniques in the intervention. That is my goal, to come alongside organizations and integrate some of these techniques and interventions in their daily practices.* [social services #1]
	I think the portions that I didn't find useful weren't applicable to our current caseload. We have all this great info but how do we use it within the context of what our job is because we are not therapists. Some of my case managers have degrees in education and decided to become case managers. But they are not clinicians and I can't expect them to be clinicians. And I think it would cause more harm to have someone who is not really clinically trained and have them provide trauma informed care and treatment. [social services #4]
	You have to make a decision about how you are going to make everybody safe and resolve the situation. So, I think probably screening and assessment services are not going to be applicable to the police department right now. Instead of doing the larger, more random group activities, maybe group us in groups that are correlated to what we do. Maybe have a group that deals with youth, and then a group that deals with mothers and children… break it up into more relevant groups so that we can distinguish

	how each topic would apply in a real-life situation. [law enforcement #1]
	I guess a shortcoming was the broadness of it. They (the trainers) gave a very broad training because they wanted to be flexible enough for any group that was there, whether it be social work or 311 operators or what have you, so it was very broad. And so, it wasn't obviously able to be very specific to a given environment because it was so broad. Just coming into it, it would have been helpful if it had been more law enforcement oriented for me. [law enforcement #2]
	You know the medical jargon, I don't think we would ever encounter it… probably having the technical terms wasn't as necessary for our department. [311 operator #1]
Training didn't really provide the next step	*I don't think (our organization) is prepared for it. I think it is difficult because they (the trainers) didn't really provide the next step. I think it was great in terms of teaching about trauma and its impact and how to talk about trauma, but I don't think they have the techniques or the interventions for organizations and organizations are really looking for something that is concrete and tangible.* [social services #1]
	It's great now we have all this information, but how can I get my residents trauma-informed training so that they can understand their own issues? [social services #3]
	Most of us (social workers) are at different sites. I have one case manager for 29 (clients) in the building, so when she is having a client who is having a moment, and at the same time there are all of these other things going, we don't have the staff capacity to be able to support trauma informed care, in the moment for all (our clients). [social services #4]
	(The trainers) mentioned programs that are doing it successfully, but maybe part of the next step is to getting some of the programs to buddy up with another program from a different state to teach their techniques. When I was working on (another) collaborative I was able to visit Gainesville and see what they were doing there and come back to Baltimore City and figure out what would and what wouldn't work in our collaborative. It's always great to go back and see what someone who is doing it successfully is doing. If there is a juvenile detention center or prison, would that prison adopt another prison and integrate their trauma informed care, like a buddy system. [social services #6]
	It's so valuable, how can they (our clients) learn how to advocate for themselves because I know that they need it. [social services #8]

CHAPTER 3. A MIXED METHODS ASSESSMENT OF THE USEFULNESS OF BALTIMORE CITY HEALTH DEPARTMENT'S TRAUMA-INFORMED CARE TRAINING INTERVENTION

Abstract

Background: While there is increasing support for training youth-serving providers in trauma-informed care (TIC) as a means of addressing high prevalence of U.S. childhood trauma, we know little about the effects of TIC training on organizational culture and providers' professional quality of life. This mixed-methods study evaluated changes in organizational- and provider-level factors following participation in a citywide TIC training.

Methods: Government workers and nonprofit professionals (N=90) who participated in a nine-month citywide TIC training completed a survey before and after the training to assess organizational culture and professional quality of life. Survey data were analyzed using multilevel regression analyses. A subset of participants (n=16) was interviewed using a semi-structured format, and themes related to organizational and provider factors were identified using qualitative methods.

Results: Analysis of survey data indicated significant improvements in participants' organizational culture and professional satisfaction at training completion. Participants' perceptions of their own burnout and secondary traumatic stress also increased. Four themes emerged from analysis of the interview data, including "Implementation of more flexible, less-punitive policies towards clients," "Adoption of trauma-informed workplace design," "Heightened awareness of own traumatic stress and need for self-care," and "Greater sense of camaraderie and empathy for colleagues."

Conclusion: Use of a mixed-methods approach provided a nuanced understanding of the impact of TIC training and suggested potential benefits of the training on organizational and provider-level factors associated with implementation of trauma-informed policies and practices. Future trainings should explicitly address organizational factors such as safety climate and morale, managerial support, teamwork climate and collaboration, and individual factors including providers' compassion satisfaction, burnout, and secondary traumatic stress, to better support TIC implementation.

3.1 Introduction

Traumatic experiences in childhood--often referred to as adverse childhood experiences (ACEs)--are common, particularly in low-income urban communities (HHS, 2014), with well-documented negative impacts on long-term development and functioning (Anda, 2006; Spitzer, 2007; Shonkoff, 2011). There is growing support for trauma-informed care (TIC) trainings (SAMHSA, 2014), which facilitate increased awareness of the needs of traumatized youth among youth-serving providers who have potential to serve as gatekeepers for trauma-informed services and resources. However, the impact of TIC trainings on contextual variables, including organization- and provider-level factors, is not well understood. As highlighted by implementation science theory, translation of evidence-based interventions into practice for addressing the needs of traumatized youth requires evaluation of contextual factors, including organizational climate and culture (Glisson, 2002; Schein, 2004) and the characteristics of providers (Ottoson, 2009; Feldstein, 2008), since these factors influence adoption and sustainability of trauma-informed practices.

Implementation science methodologies hold great benefit for evaluating the real-world applications of the TIC framework. Implementation science is a growing field that rigorously investigates how best to translate research into public health practice (Fixsen, 2005). Implementation science research suggests several organizational factors including *organizational culture*, e.g., a pattern of shared assumptions, attitudes, and beliefs in an organization (Aarons, 2011; Damschroder, 2009; Glisson, 2005; Greenhalgh, 2004) and *organizational climate*, employees' perceptions of management practices and procedures (James, 2008; Schneider, 2011), are important components of successful implementation

of evidence-based interventions. More specifically, implementation studies have shown that organizations with cultures that are supportive of employees are more effective in implementing changes in the organization, including new interventions (Glisson, 2008; Beidas, 2014).

Implementation science literature has also highlighted individual-level factors reflecting the implementation climate and the organization's readiness for change. These factors include *change valence* (Weiner, 2009), whether personnel think the change being implemented is personally beneficial or worthwhile, and *change efficacy* (Weiner, 2009), the degree to which personnel think they are capable of implementing a change. Individuals' willingness to adopt TIC policies and practices can be influenced by a number of organizational characteristics (i.e. culture and climate of an organization (Aarons, 2006); leadership (Aarons, 2007); level of organizational support for the intervention (Klein, 2001)) and provider-level factors (i.e. attitudes and beliefs (Ajzen, 2005); self-efficacy and support (Bandura, 1982)). Thus, it is critical to assess not only the intervention itself, but also the context in which the intervention is delivered.

Research on TIC interventions is emerging, but more comprehensive assessments of these interventions are needed. For example, some studies have evaluated knowledge about trauma and trauma-informed practices, including open-ended questions about lessons learned from trainings and their relevance to participants' professional responsibilities (Anderson, 2015; Kramer, 2012; Nicola, 2013; Suzanne, 2016) without assessing contextual factors as direct outcomes. Other research assessed individual factors as outcomes without examining the effect of TIC trainings on organization-level outcomes (Layne, 2011; Keesler, 2016). To our knowledge, only three studies have

assessed both organizational and provider level factors as outcomes (Fraser, 2014; Hidalgo, 2016; Lang, 2016); however, these studies have solely focused on organizational and provider level factors within one sector e.g. child welfare only (Fraser, 2014; Hidalgo, 2016; Lang, 2016). For example, Fraser et al. (2016) used the Trauma System Readiness Tool to assess participants' perceptions of agency-level and personal knowledge and capacity to use of TIC practices. Although Hidalgo et al. (2016) used a mixed methods approach and assessed quality of life of providers, the study was limited to residential care personnel. Research is needed that not only evaluates how TIC intervention informs service delivery to traumatized youth and families, but also how the intervention directly affects organizations and individuals providing those services across multiple service sectors.

In response to the Freddie Gray tragedy and ensuing Baltimore unrest in April 2015, the Baltimore City Health Department, together with its quasi-governmental partner Behavioral Health System Baltimore and support from the Baltimore City Office of the Mayor, developed the Healing Baltimore initiative through a grant from the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Mental Health Services, National Center for Trauma-Informed Care (NCTIC). The former Baltimore City Mayor Stephanie Rawlings-Blake pledged a commitment to have all frontline city workers trained in TIC. Thus, under the leadership of the Baltimore City Health Department, Baltimore City became the first city in the country to launch a citywide TIC training initiative for all government employees, which offered a unique opportunity for evaluation.

Our study had two main objectives. First, we evaluated agency personnel self-reported changes in organizational culture and provider-level compassion satisfaction and fatigue after completion of a nine-month TIC intervention that included agency implementation of TIC policies and practices. *Compassion satisfaction* is defined as the pleasure derived from being able to do one's work well (Stamm, 2005). *Compassion fatigue* encompasses two components: *burnout*, which is associated with feelings of hopelessness and difficulties in being able to do one's work effectively, and *secondary traumatic stress*, which involves developing problems due to exposure to the trauma of others (Stamm, 2005). Based on preliminary data from an earlier phase of the training and the intention of the training developers to address organizational and provider level factors associated with TIC implementation, we hypothesized that there would be a significant improvement in organizational culture, significant increase in compassion satisfaction, and significant decrease in compassion fatigue upon completion of the training.

Second, our study obtained participants' perspectives on the training using individual in-depth interviews with a subset of participants. Quantitative studies on the organizational culture and providers' professional quality of life employ established standards for measuring these domains. However, quantitative data may miss contextual detail regarding the impact of the training on participants, or how the training might be improved. Qualitative methods complement quantitative methods by providing detailed descriptions or narratives regarding the impact of the training, including trainees' perceptions and experiences in participating in the intervention (Creswell, 2011). We used a sequential explanatory mixed methods design (Gallo, 2016) in which open-ended

interviews are used to provide explanation and context for survey responses. By applying a mixed methods approach to evaluating the training intervention, we aimed to reach a better understanding of participants' experiences with the training and how the training could be improved (Beidas, 2014; Palinkas, 2011). Thus, this study addressed gaps in the prior literature on the impact of TIC training by using a mixed methods design, including participants from multiple service sectors, and assessing organizational and provider factors as outcomes.

3.2 Methods

3.2.1 Healing Baltimore Initiative Training and Sample

The Baltimore City Health Department (BCHD), in collaboration with SAMHSA's National Center for Trauma Informed Care (NCTIC) and Behavioral Health System Baltimore (BCHB), led a nine-month comprehensive, evidence-based trauma-informed implementation training and coaching collaborative to agencies across Baltimore City. SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach (SAMHSA, 2014) provided the framework for this training intervention. NCTIC consultants conducted the monthly training at the BHSB office, and focused on educating and providing technical assistance to participants in implementing the six TIC principles outlined by SAMHSA: 1) Safety, 2) Trustworthiness and Transparency, 3) Peer Support, 4) Collaboration and Mutuality, 5) Empowerment, Voice and Choice, and 6) Cultural, Historical and Gender Issues.

Under this multi-systemic, multi-agency collaborative, government agencies and youth-serving organizations across Baltimore City participated in several activities

including a series of monthly technical assistance, coaching, and feedback sessions from national trauma experts on how to utilize trauma-informed practices at their agency. Participants represented a wide range of government agencies and nonprofit organizations that interact with traumatized persons. Participating agencies can be categorized as falling within the following domains: Law Enforcement, Social Services, and Health and Education. Participants in the nine-month training (N=90) were identified by their respective agencies to lead and implement trauma-informed approaches at their respective workplaces. All participants were over 18 years of age and English speaking. The Institutional Review Board at the Johns Hopkins Bloomberg School of Public Health approved all study procedures, and all research participants provided informed consent.

3.2.2 Pre-post design

Data came from pre- and post-surveys administered by BCHD and BHSB staff at the beginning (October 2015) and at the conclusion (June 2016) of the nine-month implementation training. The pre- and post-surveys were administered to all training participants (N=90). An online version of the survey was administered to participants not present at either the first or last training of the intervention. Participants were compensated for their time by their respective agencies.

3.2.3 Measurement Strategy

This study employed a subset of measures from the pre-post surveys regarding changes in provider-and organizational-level factors associated with implementation of trauma-informed care, as described below.

Safety Attitudes Questionnaire (SAQ). The SAQ is a validated 60-item questionnaire which measures organizational factors such as safety climate and morale, work environment factors such as managerial support, and team factors such as teamwork climate and collaboration (Sexton, 2006). Participants responded to all items using a Likert scale ranging from 1 *(disagree strongly)* to 5 *(agree strongly).* The demonstrated an acceptable level of internal consistency in our study sample (Cronbach's alpha =.77).

Professional Quality of Life (ProQoL). The ProQOL scale is a validated 30-item self-report assessment of work-related 1) compassion satisfaction, 2) burnout, and 3) secondary traumatic stress (Stamm, 2005). Participants responded to all items using a Likert scale ranging from 1 *(never)* to 5 *(very often).* Both subscales demonstrated strong internal consistency in our sample: Cronbach's alpha =.88 for compassion satisfaction and .87 for compassion fatigue.

Other covariates. BCHD staff also administered a brief form to gather information about sociodemographic characteristics such as organization affiliation (government law enforcement, government social services, government health education and nonprofit), race/ethnicity (African-American, White, Latino, Asian or Pacific Islander, Other), gender, age (18-34, 35-44, 45-54, $\geq$ 55), educational attainment (high school, some college, college, graduate degree), role at agency/organization (direct service, management/administration), years in current position (< 1 year,1-5 years, 6-10 years, 11+ years), native of Baltimore City (yes/no), and participation in any prior TIC training (yes/no).

3.3.4 Semi-structured interviews

Semi-structured interviews were conducted two months following the intervention with a subset of participants (n=16) in the intervention. BCHD and BHSB staff overseeing the TIC intervention described the study to all trainees who met the inclusion criteria, asked them if they were interested in learning more about the study, and shared the contact information of interested trainees with the research team. Snowball sampling was used to recruit additional participants; initial interviewees were asked to recommend others from their respective agencies who might be interested in participating in the training. The lead author explained the study and obtained informed consent. Interviews were digitally recorded and transcribed. Any identifying information, such as the names of individuals or places, was removed in the transcription process.

The interview guide for semi-structured interviews covered four domains based on discussions with key informants (i.e. BCHD staff, SAMHSA training developers) and preliminary research (Damian, 2015): 1) Usefulness of training, 2) General impact of training on organizational culture and climate, 3) Specific impact of training on organizational culture of safety, and 4) Impact of training on referrals of traumatized individuals. In this study, we focused on responses pertinent to the second and third domains listed above (i.e., impact of training on organizational culture and climate and organizational culture of safety). The first author conducted all interviews.

3.3.5 Analysis strategy

Data were first inspected for data entry errors and outliers and cleaned as needed. Multiple imputation via Chained Equations (van Burren, 1999) was applied to missing

data (>5% of values were missing). Paired t-tests were conducted to examine if mean SAQ and PROQoL scores changed significantly from the beginning to the conclusion of the 9-month intervention training. Multilevel regression analysis was employed to adjust for the potential confounding effects of the demographic variables noted earlier in this paper on the relationship between pre-post SAQ and PROQoL mean scores. STATA 13.0 was used for all statistical analyses.

Analysis of semi-structured interviews was conducted by two trained coders who independently used the constant comparative method, moving iteratively beyond codes and text to derive themes related to what participants thought about the intervention. Originally developed for use in the grounded theory method of Glaser and Strauss (Glaser & Strauss, 1967), the constant comparative method involves selecting one component from the data, such as a theme, and comparing it to the rest of the data to develop conceptualizations about possible relations across various data components (Boeije, 2002). We focused our attention on responses related to how the intervention influenced participants' organizational culture and climate with an additional interest in the impact on organizational safety.

3.3 Results

3.3.1 Sample characteristics

Of the 90 pre-survey respondents, we excluded 2 (2.2%) who only completed the sociodemographics questions but did not respond to the rest of the survey. Table 1 shows the demographics of the analytic sample (N=88). The mean age of study participants was 43.0 years (standard deviation: 13.6), and most were women (74.1%) and African

American (71.4%). Most participants had at least a college degree (77.0%) and had previously participated in some form of trauma-informed care training (60.0%). Sixteen participants, mostly women (87.5%), volunteered for interviews and were individually interviewed by the first author.

3.3.2 Change in organizational culture and climate

The improvement in mean SAQ scores ($M=3.91$, $SD=17.04$; $p<0.05$) from pre- to post-training was significant (Table 2). Additionally, mean scores for the compassion fatigue ($M=11.76$, $SD=20.16$; $p<0.001$) and compassion satisfaction ($M=7.97$, $SD=10.91$; $p<0.001$) subscales of the PROQoL scale both increased significantly.

3.3.3 What participants said about the training

Four major themes relevant to the SAMHSA TIC principles outlined earlier in this paper emerged from our review of the qualitative data (Table 3), two related to changes in organizational-level factors and two related to changes in provider-level factors.

Themes related to changes in organizational-level factors. Two themes highlighted organizational changes that took place to improve trauma-informed practices with youth and families using services. Nine out of 16 participants reported agencies' implementation of more flexible, less punitive policies towards clients. Participants explained that policies and procedures at their respective organizations were changed to meet the real-time needs of clients. Participants also observed greater organizational awareness of the need to prioritize empathy and meeting clients where they are at, as

opposed to being solely focused on completing paperwork. The second theme that emerged related to organizational change was adoption of a trauma-informed workplace design (reported by 4 out of 16 participants). Participants described how their respective agencies adjusted the physical layout of their workplace to be more welcoming and to serve as a calm, safe space for clients. They reported that a change in the physical space facilitated more positive interactions between them and their clients.

Themes related to changes in provider-level factors. Two additional themes highlighted the impact of the intervention on changes at the provider level. Eleven out of 16 participants reported a greater sense of camaraderie and empathy for colleagues. This theme was consistent with survey results regarding participants' improved compassion satisfaction score; participants reported greater initiative on the part of senior management at their respective organizations to appreciate providers' efforts, as well as enact policies to enhance providers' well-being. A second provider-level theme was a heightened awareness of providers' own traumatic stress and need for self-care (reported by 10 out of 16 participants). Participants' description of becoming more aware of their own trauma and traumatic stress were consistent with the survey findings of participants' increased compassion fatigue. Participants explained their need to set boundaries at work and practice healthy ways of releasing stress experienced from interacting with traumatized individuals.

3.4 Discussion

Our study highlights significant changes that occurred among government and nonprofit service personnel representing a range of sectors (Health and Education, Law

Enforcement, Social Services) who participated in a nine-month TIC implementation training and learning collaborative. The findings suggest that research participants generally perceived the TIC intervention as beneficial for themselves and their organizations. With respect to program benefits, the training intervention showed positive impacts both with respect to organizational factors (safety climate and morale, managerial support, teamwork climate and collaboration) and individual factors (compassion satisfaction). Although the intervention in this study uses a different training model and framework for understanding TIC, the findings in this paper are consistent with previous studies (Hidalgo, 2016), which also found improvement in safety climate and job satisfaction among residential care providers that participated in a TIC training. Implementation studies have shown that organizations with cultures that are more supportive of employees are in turn, more effective in implementing changes in the organization (Beidas, 2014; Klein, 2001). Thus, the observed improvements in organizational- and provider-level outcomes have potential to support participating agencies in better addressing the needs of trauma-affected youth (Glisson, 2002; Glisson, 2005).

Our sequential, mixed methods design allowed us to use information derived from the semi-structured interviews to support the findings from the pre-post surveys and to point the way toward improved training. For instance, qualitative findings were largely consistent with survey results regarding TIC training impact on organizational-level factors. Participants' reports of adoption of a trauma-informed workplace design supported significant quantitative findings regarding improvements in safety climate and working conditions. Some organizations restructured the physical layout of their offices

as a demonstration of their commitment to providing a physically and psychologically safe space for clients and staff. Importantly, change in the physical working conditions was reported to enhance positive interactions between clients and staff.

Our findings also suggested significant changes in provider-level perceptions. Survey data indicated an overall improvement in perception of the quality of the work environment and approval for managerial action to promote a culture of safety. Our quantitative findings are consistent with the theme that emerged in individual interviews of a greater sense of camaraderie and empathy for colleagues. Some participants reported greater initiative on the part of management to support staff through open door policies and establishing mental health days, which is consistent with our quantitative findings of improved perceptions of management. Our findings are in contrast to Lang and colleagues (Lang, 2016) who found that participants perceived low agency support for addressing trauma among children and staff experiences of secondary traumatic stress. Hidalgo (2016) found significant improvement in staff collaboration, but did not explicitly discuss changes in management support.

Our findings also highlighted providers' increased awareness of their own personal stress. The survey items asked about feeling overwhelmed, worn out, and having difficulty in separating one's personal life from one's role as a provider. Participants' interview responses reinforced quantitative findings regarding negative effects on job performance of secondary exposure to traumatically stressful events, and were consistent with previous studies (Fraser, 2016; Hidalgo, 2016; Lang, 2016), highlighting the high rate of secondary traumatic stress and burnout among service providers working with traumatized youth. The intervention likely shifted participants' awareness of their

emotional needs and stressors rather than increasing those stressors, which may be an important step for providers in moving toward better self-knowledge and self care. In addition to acknowledging their personal secondary traumatic stress, participants also reported greater awareness that their colleagues were experiencing a similar phenomenon, which subsequently increased staff empathy towards one another.

Qualitative data suggested that TIC training resulted in more flexible, less punitive policies towards clients; this was a unique finding captured by the semi-structured interviews. While the quantitative assessments provided information regarding changes in organizational and provider factors associated with implementation, the qualitative theme regarding policy changes revealed a direct impact of training on TIC implementation. Across sectors, a subset of interview participants described being less inclined to use labels and less rigid in their approaches to clients. Rather, these providers described being able to listen more and pay more attention to what the client needs at a given time. This is consistent with findings from semi-structured interviews conducted by Hidalgo et al (2016), in which participants also described reducing the use of restraints and improving communications with traumatized youth.

3.4.1 Directions for Future Research, Practice, and Policy

As noted earlier in this paper, previous studies on TIC trainings have largely included participants from the social services and healthcare sectors. However, as a recent synthesis of the literature on TIC pointed out (Reeves, 2015), there is variation in the duration and level of engagement between providers and traumatized individuals based on providers' employment sector, and these differences may influence

implementation. Thus, future research should assess provider-client relationship dynamics as they relate to implementation, particularly in sectors where TIC training has been understudied, including law enforcement. Additionally, there is also a need for more studies on the efficacy of TIC trainings and changes to organizational practice (Reeves, 2015). Although the current study found significant organizational and provider level TIC changes following completion of training, there is a need to examine whether early adopters of TIC sustain the reported changes. Last, the findings underscore the high prevalence of secondary traumatic stress and burnout among service personnel that work with traumatized youth. Although there is a body of literature on trauma and secondary traumatic stress among providers and how these provider-level factors negatively effect job performance and quality of care provided to clients (Copanitsanou, 2017; Luther, 2016; Roh, 2016; Salters, 2016), future research is needed to evaluate how participation in a TIC training intervention helps providers deal with their own trauma, and the subsequent effects on quality of care provided to traumatized youth and families.

Although participants in the current study were involved in a fairly long (nine-month) training, the implementation literature on TIC (Kramer & Burns, 2008) suggests the need to address system-level factors related to maintenance of intervention practices, particularly booster sessions, ongoing support/supervision and technical assistance to facilitate implementation. Thus, developers of the TIC training should consider the ways in which organizations and individual providers can continue to be supported beyond their formal participation in the training. In addition, given the significant increase in compassion fatigue suggesting a heightened awareness of providers' burnout and secondary traumatic stress, future iterations of the training can include a more direct

focus on providers' mental health issues, including addressing potential stigma around mental health.

While this training largely focused on organizations and providers, it is important to recognize that traumatized youth are part of the TIC ecological model. Thus, as highlighted by Kramer & Burns (2008), it is important to assess implementation culture at the level of the client and ensure that TIC trainings that educate youth and families about trauma are also made available. The framework set forth by Raghavan et al (2008) regarding implementation of evidence-based practices in public mental health settings, can also be applied to understand the policy implications of this study. Although this study focused on direct changes to organizational and provider factors resulting from participation in the training, the burden of implementation cannot be placed on any individual organization or provider. There is a need for development of policy, such as states creating a rewards structure for TIC, to support organizational and provider implementation. Moreover, given the time and resources required for employees to attend trainings and change organizational practices to be more trauma-informed, policies can further incentivize implementation of TIC through reimbursement strategies and allocation of CEU professional credits by licensing boards.

3.4.2 Limitations and strengths

This study has several limitations. First, the lack of a comparison group limits the ability to estimate intervention effects. Recruitment of a comparison group for this study was not feasible since all City agencies participated in the TIC initiative and identifying comparison individuals at the participants' respective agencies was beyond our funding

and timeline constraints. Second, the participants in the intervention were recruited by their respective agencies; therefore, their responses and any observed changes may not be representative of the other personnel at those agencies. The participants in our semi-structured interviews may also not have been representative of the intervention participants. Third, uniform criteria for selecting participants were not established across agencies because each participating agency decided for itself which members of its workforce would participate in the training intervention. Fourth, the study relied on participants' self-report, which is subject to socially desirable responding. Fifth, the study was underpowered to detect and compare differences in treatment effects across the different service sectors represented in the current study. Although an item on participants' agency/organizational affiliation was included in the survey, only 25% of respondents answered this item. Consequently, we could not link or compare changes by agency/organization. Lastly, the observed increase in providers' compassion fatigue may result from factors external to the TIC training rather than from increased awareness. For instance, the finding may reflect an actual increase in trauma among providers' clients or workload involving traumatized youth and families, which was not measured in this study.

This study also has a number of strengths. Use of a mixed-methods approach provided a nuanced understanding of the impact of the TIC training. The purpose of the open-ended interviews was exploratory, striving for depth of understanding and not representativeness. The current study was also strengthened by the inclusion of diverse participants, with respect not only to race/ethnicity, gender, and role at their respective organization but also the various types of government agencies and nonprofit

organizations they represented. The cross-sector representation of diverse agencies reflects the multiple service systems that come into contact with traumatized youth.

3.5 Conclusion

Implementation science research indicates that both organizational and provider-level factors are important components of successful implementation of interventions such as TIC. Restructuring of TIC trainings to address organizational factors such as safety climate and morale, managerial support, teamwork climate and collaboration, and individual factors including providers' compassion satisfaction, burnout, and secondary traumatic stress, can potentially support successful implementation of TIC policies and practices. In doing so, TIC trainings go beyond increasing participants' knowledge about the biological and psychosocial consequences of trauma to incorporate the contextual (organizational and individual) factors associated with TIC service delivery. Attention to organizational and individual factors might enhance implementation of TIC principles. Expansion of cross-sector TIC trainings and evaluation of subsequent implementation of TIC related changes can help break down silos between different service systems and foster improvements in addressing the unique needs of youth that have experienced trauma. As the need for TIC receives greater attention and more resources are allocated to train personnel outside the traditional healthcare system in TIC, additional evaluation studies should be conducted to test long-term changes in participating organizations and individual providers.

3.6 References

Aarons, G.A., Hurlburt, M. & Horwitz, S.M. (2011). Advancing a Conceptual Model of Evidence-Based Practice Implementation in Public Service Sectors. *Administration and Policy in Mental Health and Mental Health Services Research*, 38, 1-23.

Anda, R.F., Felitti, V.J., Walker, J., Whitfield, C.L., Bremner, J.D., Perry, B.D., Dube, S.R., Giles, W.H. (2006). The Enduring Effects of Abuse and Related Adverse Experiences in Childhood: A Convergence of Evidence from Neurobiology and Epidemiology. *European Archives of Psychiatry and Clinical Neurosciences*, 256, 3, 174-86.

Beidas, R.S., Benjamin Wolk, C.L., Walsh L.M., Evans, Jr., A.C., O Hurford, M., & Barg, F.K. (2014). A complementary marriage of perspectives: understanding organizational social context using mixed methods. *Implementation Science*, 9, 175.

Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality & Quantity*, 36, 391–409.

Child & Adolescent Measurement Initiative (2014). *Lifelong health, school success and adverse childhood experiences among Maryland & Baltimore's children.* Data Resource Center, supported by Cooperative Agreement 1-U59-MC0680-01 from the U.S. Department of Health & Human Services. Health Resources & Services Administration, Maternal & Child Health Bureau.

Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., & Van der Kolk, B. (2005). Complex trauma, *Psychiatric annals*, 35(5), 390-398.

Copanitsanou, P., Fotos, N., & Brokalaki, H. (2017). Effects of work environment on patient and nurse outcomes. *Britsh Journal of Nursing*, 26(2): 172-176.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research.* (2nd ed.). Thousand Oaks, CA: Sage.

Damaschroder, L.J., Aron, D.C., Keith, R.E., Kirsh, S.R., Alexander, J.A., & Lowery, J.C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation Science*, 7(4), 50.

Feldstein, A.C. & Glasgow, R.E. (2008). A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. *Jt Comm J Qual Patien Saf,* 34, 4, 228-243.

Fixsen D.L., Naoom, S.F., Blasé, K.A., Friedman, R.M., Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: National Implementation Research Network: University of South Florida.

Fraser, J.G., Griffin, J.L., Barto, B.L., Lo, C., Wenz-Gross, M., Spinazzola, J., Bodian, R.A., Nisenbaum, J.M., & Bartlett, J.D. (2014). Implementation of a workforce initiative to build trauma-informed child welfare practices and services: Findings from the Masachusetts Child Trauma Project. *Children and Youth Services Review*, 44, 233-242.

Gallo J.J. & Lee S.Y. (2016). Mixed methods in behavioral intervention research. In: Gitlin LN, Czaja SJ, eds. *Behavioral Intervention Research* (pp195-211). New York, New York: Springer Publishing Company.

Glaser, B.G. & Strauss, A.L. (1967). The Discovery of Grounded Theory: Strategies for Qualitative Research. New York, NY: Aldine Publishing.

Glisson, C & James, L.R. (2002). The cross-level effects of culture and climate in human service teams. *J Organ Behav*, 23, 767-794.

Glisson, C. & Schoenwald, S.K. (2005). The ARC organizational and community intervention strategy for implementing evidence-based children's mental health treatments. *Mental health services research*, 7(4), 243-259.

Glisson, C., Schoenwald, S.K., Kelleher, K., Landsverk, J., Hoagwood, K.E., Mayberg, S. & Green, P. (2008). Research Network on Youth Mental Health: Therapist turnover and new program sustainability in mental health clinics as a function of organizational culture, climate and service structure. *Administration and Policy in Mental Health and Mental Health Services Research*, 35, 124-133.

Greenhalgh, T., Robert, G., Macfarlane, F. Bate, P., Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Q*, 82, 581—629.

Hidalgo, J., Maravic, M.C., Milet, R.C., & Beck, J.C. (2016). Promoting collaborative relationships in residential care of vulnerable and traumatized youth: a playfulness approach integrated with trauma systems therapy. *Journal of Child & Adolescent Trauma*, 9(1), 17-28.

James, L.R., Choi, C.C., Ko, C., et al. (2008). Organizational and psychological climate: A review of theory and research. *European Journal of Work and Organizational Psychology*, 17, 5-32.

Kramer, T.L. & Burns, B.J. (2008). Implementing Cognitive Behavioral Therapy in the real world: A case study of two mental health centers. *Implementation Science*, 3, 14.

Lang, J.M., Campbell, K., Shanley, P., Crusto, C.A., & Connell, C.M. (2016). Building capacity for trauma-informed care in the child welfare system: initial results of a statewide implementation. *Child Maltreatment*, 21(2), 113-124.

Luther, L., Gearhart, T., Fukui, S., Morse, G., Rollins, A.L., & Salyers, M.P. (2016). Working overtime in community mental health: associations with clinical burnout and perceived quality of care. *Journal of Psychiatric Rehabilitation*. (In press).

Ottoson, J.M. & Hawe, P., eds. (2009). *Knowledge utilization, diffusion, implementation, transfer and translation: Implications for evaluation*. Vol. 124. San Francisco: Jossey-Bass and the American Evaluation Association.

Palinkas, L.A., Aarons, G.A., Horwitz, S., Chamberlain, P., Hurlburt, M., & Landsverk, J. (2011). Mixed method designs in implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 38, 44-53.

Raghavan, R., Bright, C.L., & Shadoin, A.L. (2008). Toward a policy ecology of implementation of evidence-based practices in public mental health settings. *Implementation Science*, 3, 26.

Reeves, E. (2015). A synthesis of the literature on trauma-informed care. *Issues in Mental Health Nursing*, 36(9), 698-709.

Roh, C.Y., Moon, M.J., Yang, S.B., & Jung, K. (2016). Linking emotional labor, public service motivation, and job satisfaction: social workers in health care settings. *Social Work in Public Health*. 31(2), 43-57.

Salyers, M.P., Bonfils, K.A., Luther, L., White, D.A., Adams, E.L., & Rollins, A.L. (2016). The relationship between professional burnout and quality and safety in healthcare: a meta-analysis. *Journal of General Internal Medicine*. (In press).

SAMHSA's Trauma and Justice Strategic Initiative, "SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach," July 2014. Date retrieved: 7 July 2015. Retrieved from http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf.

Schneider, B., Ehrhart, M.G., Macey, W.A. (2011). Organizational climate research: Achievements and the road ahead. In Ashkanasy NM, Wilederom CPM, Peterson MF, eds. *Handbook of Organizational Culture and Climate* (pp 29-49). Newbury Park, CA: Sage.
Schein, E. (2004). *Organizational culture and leadership*. Third edition. San Francisco: Jossey-Bass.

Sexton, J.B., Helmreich, R.L., Neilands, T.B., Rowan, K., Vella, K., Boyden, J., Roberts, P.R., & Thomas, E.J. (2006). The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC Health Services Research*, 6(1), 44.

Shonkoff, J., Garner, A., Siegel, B., Dobbins, M., Earls, M., & Garner, A. et al. (2011). The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics, 129*(1), e232-e246.

Stamm, B. H. The ProQOL manual. The professional quality of life scale: Compassion satisfaction, burnout & compassion fatigue/secondary trauma scales. 2005. Date retrieved: 15 October 2015: Retrieved from http://www.compassionfatigue.org/pages/ProQOLManualOct05.pdf.

van Buuren, S., Boshuizen, H.C., Knook, D.L. (1999). Multiple imputation of missing blood pressure covariates in survival analysis. *Statistics in Medicine*, 18(6), 681-694.

Weiner, B.J. (2009). A theory of organizational readiness for change. *Implementation Science*, 19, 67.

Table 3.1 Demographics of Analytical Sample in Baltimore City Health Department's Trauma-Informed Care Training Intervention (N=88).

(Data from pre-post surveys administered during Baltimore City Health Department's TIC Intervention.)

Characteristics	Total * N (%)
Age, in years	
Less than 35	26 (44.8)
35-44	14 (24.1)
45-54	10 (17.4)
55 or more	8 (13.8)
Gender	
Male	22 (25.3)
Female	65 (74.1)
Race/Ethnicity	
African-American or Black	60 (71.4)
White	21 (25.0)
Latino	1 (1.2)
Asian or Pacific Islander	1 (1.2)
Other	1 (1.2)
Highest level of education completed	
High school	5 (6.76)
Some college	12 (16.2)
College	20 (27.0)
Graduate degree	37 (50.0)
Role at agency/organization	
Direct service (Frontline)	39 (44.3)
Management/Administration	49 (55.7)
Years in current position	
Less than a year	18 (20.7)
1-5 years	37 (42.5)
6-10 years	14 (16.1)
11+ years	18 (20.7)
Baltimore City native	
Yes	37 (43.0)
No	49 (57.0)
Participated in any prior trauma-informed care training	
Yes	51 (60.0)
No	34 (40.0)

*Column percentages may not add up to 100% due to missing values

Table 3.2 Pairwise Comparisons of Safety Attitudes Questionnaire (SAQ) and Professional Quality of Life (PROQoL). (Data from pre-post surveys administered during Baltimore City Health Department's TIC Intervention.)

	Baseline Mean (SD)	**Post Mean (SD)**	**Pre-post Difference (SD)**	**95% CI for Difference**	
SAQ	78.97 (11.51)	82.88 (12.19)	**3.91 (17.04)***	0.30	7.52
PROQoL					
Compassion Fatigue	43.09 (9.77)	54.85 (17.07)	**11.76 (20.16)*****	7.49	16.03
Compassion Satisfaction	39.73 (6.12)	31.76 (8.74)	**7.97 (10.91)*****	5.65	10.28

*p<0.05 ***p<0.001.

Note: Increased *Compassion Fatigue* and *Compassion Satisfaction* scores mean higher level of compassion fatigue and satisfaction, respectively.

Table 3.3 Themes of intervention usefulness identified through qualitative analysis of participant interviews *(n = 16)*

Theme	Sample quotes
Implement more flexible, less-punitive policies towards clients	*We like to think that the way we implement it (programs) is very compassionate and trauma-informed. One of the things that we definitely have shifted since doing the training is that we aren't quite as rigid. We've loosened up a bit. We've become less attached to how it has to look, as far as the session goes. We're meeting them more where they are.* [social services #002]
	If somebody comes down and were having a difficult conversation, we don't force the session, we allow clients to retreat, we check on them later…and if a client needs a break we say how about we pick up this conversation later. If somebody is extremely agitated, we sit in silence and help them catch their breath, we try and maintain a steady tone of voice with them…we talk about ways that they can take care of themselves between that session and the next session. [social services #008]
	Just more patience. More understanding, and to not write a kid off as – as being inherently bad or "young criminal" or something. You kind of understand that there are different things at play. [law enforcement #001]
	And the other component that has helped me is not making it so rigid... I sometimes have people who seem nervous, so I sit with them outside and we just sit outside and talk. and I don't need to have the papers in front of me and have notes. I can just go back and write that we had a meeting and write it down and it helps them not be so nervous to talk to me. Those are the things that have been really helpful to keep in the back of my mind to remember that people may not be comfortable in this room, they may not be comfortable talking to me for lots of reason. those have been really helpful. [law enforcement #002]
	For me I made stuffed animals available for the children. I switched the way I talked and how I approach them. Knowing that the way that the child is used to an authority figure talking to them is always yelling. So lowering my voice and changing the inflection in my voice. I offer them hugs. I ask them what do you need today to be successful. [parks and rec #001]
	Just a better, better sense of listening. I let them vent, I let them scream, I let them howl, I let them yell. You know whatever it takes for them, and when you're quiet then the person says, "Hello, you still there?" "Yes ma'am, I'm still here, I'm just listening to you."

	You know, so that I know that our house has served you, how to get you to the right person if I can't help you, you know. [311 operator #001]
Adopt trauma-informed workplace design	*We have set up our offices a little differently, we give them options to either face the door or have their back to the door. we have redone our front office so it's a little less chaotic and a little more soothing when they come in.* [social services # 003]
	I recognize that you can actually design workspace in the environment in a remarkable easy and cost effective way to implement the trauma informed approach to care [social services # 004]
	We all discussed it and we felt like clients when they came into the office were not feeling welcomed and that had a lot to do with the pictures on the wall, it had a lot to do with the color of the office, and so we had volunteers come in and they had redesigned our office and they painted so it's more brighter, it's more calming, you know, the pastel colors, as opposed to dark or gray or like, hospital or padded entry (?) type, one color wall. We've made it more brighter, like I said, we changed the layout of the desks. They're now, they're going to be in an L-shape as opposed to when you come in, there's an I. [social services # 005]
	You make sure that their space is clean and that it smells and good and you know so that's the kind of physical and environmental stuff that I integrate into the work. I turned off the light in my office and put up a lamp in it to make it a softer light… I had brought stuff for children in my office. I had done that before, but stopped it. I – I brought it back in. I have kind of adjusted the arrangement of my desk and how the residents approach my door, I notice a whole difference in my interactions with them that does not lead to me being overly stressed out. [social services #007]
Heightened awareness of own traumatic stress and need for self-care	*The training really prompted me to look at my own trauma and figure out if I was really able to access it. I'd say I've become more inclined, like, to be aware of – like, "Hey, you know, I'm kinda stressed. I need to take some time off." I definitely realize that I've got stuff going on, that whole secondary trauma thing. I'm more aware of that than I was before. The need to do that. It's very hard for me because, you know, I'm kind of 24/7. I have my phone on all the time… I have always understood self- care and I you know, I have started writing, or I started painting, or I dance, or I journal… I think the training started to bring me back to a place where I needed to do some introspection. introspection I needed to find an outlet, to really take care of myself.* [social services #001]

	Now I take more time for myself. I've learned not to feel guilty, not thinking about the residents when I get home. I started it about two years ago- I have two corners that I turn to get home. Once I turn that second corner, I had to train myself to let go and I will be back tomorrow because that's when I have to start focusing on me, my children, and my home, I know I did a good job, so while I'm driving those two corners, I think about what good I did in a day and what did I accomplish and I give myself a pat on the back, and I keep it moving. So that's how I train myself not to bring the job home. [social services #005]
	After our training was completed, we had a pretty in-depth team meeting around self-care. We do encourage especially more aggressively taking those mental health days. I make it a priority to try and kind of des-stress and create an environment for myself at home, not bringing work home… I do my best, but you know sometimes it's just a really crappy day and you can't just say I'm just gonna leave that at work and not bring that home. [social services #009]
	You're feeling a certain way and you don't really understand it and then you get to subjective presentation of the effects of secondary trauma and, um, how that affects you and you're like, "Oh, okay. That's kind of why I feel the way I do.' [law enforcement #001]
Greater sense of camaraderie and empathy for colleagues	*When you're not at a good place or feeling overwhelmed by the work, or feeling stuck, there is a willingness and openness on supervisors that were aware of it, and were able to support staff in a way that's not making them feel like they're incompetent or that they are failing.* [social services #001]
	Senior management keeps an open-door policy where we can um come to them if there, you know, is anything bothering us or anything that we just need to get off our chest, anything anytime we need to express any concerns, um that they definitely maintain an open-door policy for us. I do the same for my stuff um and we make sure that we have certain um procedures in line so that um if someone does start to feel um burnt out that they, they have that access to um have that, take the time off that they need or you know take that break that they need, so that we can encourage that, that healthier workplace. [social services #008]
	I do the same for my staff and we make sure that we have certain procedures in line so that if someone does start to feel burnt out that they can take the time off that they need or take that break that they need, so that we can encourage that, that healthier workplace. [social services #009]

I feel like you helped me understand my fellow officers better. And then, um, I saw, even though I'm not patrol anymore, I saw how understanding trauma-informed care would help, you know, patrol officers, um, kinda go into a situation with a little bit more confidence and understanding. [law enforcement #001]
I try to recognize that the secondary trauma and the burnout from the things that we do so I try to make sure that the staff have breaks that they need, if I just tag team if you need to tag out and get a little breather I can tag in or we can rotate the groups so that it's possible that they can kind of "woo-saw" and take that deep breath and then we have staff meetings regularly, kind of changed the format to allow more open discussion instead of, what happens is the center directors have meetings with our area managers and so instead of it just being information being disseminated to kind of do pulse checks with the staff. [Parks and Rec #001]
We had several cookouts, well cook-ins, several cook-ins. We had a relaxed dress code for probably about a month and a half; we're still in it till September 2nd. That has kinda lifted everybody's spirit a little bit. Try to bring everybody together as a whole because we as a group, we were really divided, so it's kind of brought some of us together. [311 operator #001]

Theme 1: Implement more flexible, less-punitive policies towards clients n=9 (56%)
Theme 2: Adopt trauma-informed workplace design n=4 (25%)
Theme 3: Heightened awareness of own traumatic stress and need for self-care n=10 (63%)
Theme 4: Greater sense of camaraderie and empathy for colleagues n=11 (69%)

CHAPTER 4: BARRIERS AND FACILITATORS FOR ACCESS TO MENTAL HEALTH SERVICES BY TRAUMATIZED YOUTH

Abstract

Polytrauma is a highly prevalent public health problem in the U.S. with even higher rates in urban areas. Children with polytrauma often end up in multiple child-serving systems (e.g., mental health, child welfare, education, juvenile justice) with needs that are both complex and severe. Providers within these child-serving systems have potential to serve as gatekeepers to trauma services by linking youth with trauma-informed treatments and supports that promote tt56recovery. The purpose of our study was to assess the perspective of providers who participated in a nine-month, trauma-informed care (TIC) training intervention on 1) their capacity to make referrals to trauma-specific services following the training, and 2) factors external to the training intervention that supported or hindered their ability to link traumatized youth with services. A subset of sixteen participants from the TIC training completed individual interviews. These participants were predominantly female, African American, and based in the social services sector. The constant comparative method was used to derive three thematic domains related to participant perceptions regarding youth referrals: 1) Organizational and provider capacity to provide trauma treatment or to make referrals to trauma-specific services, 2) Barriers to youth accessing trauma services, and 3) Suggestions for improving coordination of care and referrals. Our study highlights the influence of contextual factors on whether a TIC training can improve the capacity of agencies and individual providers to support traumatized youth in accessing appropriate services. The

development of a structure that formally connects youth-serving agencies and providers with specialists trained in addressing traumatized youth is recommended.

4.1 Introduction

Polytrauma is a highly prevalent public health problem in the U.S. (Ko, 2008), with higher rates in urban areas than rural (HHS, 2014). Children with polytrauma often end up in multiple child-serving systems (e.g., mental health, child welfare, education, juvenile justice) with needs that are both complex and severe (SAMHSA, 2014). Fortunately, effective trauma-focused treatments exist (Cohen, 2012; Gurwitch, 2015; Lucio & Nelson, 2016). Thus, there is a need to train service providers in trauma-informed care (TIC), specifically, how to recognize and respond to youth in a way that does not re-traumatize them, as well as how to promote referrals of trauma-affected youth to the appropriate support systems to heal from trauma. Non-clinical service providers are potential gatekeepers to TIC services and social support systems that can help youth heal from trauma. A growing body of literature has assessed referral-related outcomes of TIC trainings. Several quantitative and mixed methods studies have found TIC trainings to be an effective starting point for screening and identifying traumatized youth and making referrals to appropriate trauma treatment and services (e.g. Fraser, 2014; Kramer, 2012; Lang, 2016). Although prior studies have added to our understanding of how TIC trainings can potentially serve as an effective tool for addressing the unique needs of youth who have experienced trauma, the literature in this area has several limitations. For example, some studies only focused on organizational and provider level barriers to referrals (Conners-Burrow, 2013; Fraser, 2014; Lang, 2016), without taking in to consideration barriers at the level of youth and families. In addition, several studies only included participants from rural, predominantly white settings (Conners-Burrow, 2013; Henry, 2011; Kramer, 2012) and others did not report the

sociodemographic characteristics of their target populations (Fraser, 2014; Kerns, 2016; Lang, 2016). As a result, perspectives on TIC trainings in urban communities of color are not well represented in the literature. Some studies were also limited by the design of their training interventions, which only included participants from the mental health and/or child welfare systems, many of whom already have prior exposure to trauma-related concepts (Conners-Burrow, 2013; Fraser, 2014; Kerns, 2016; Kramer, 2012; Lang, 2016).

This qualitative evaluation of a nine-month cross-sector citywide TIC training in Baltimore City for urban youth-serving agencies addressed the limitations of prior studies by evaluating barriers to screening, identifying, and referring traumatized youth to appropriate treatment and services at the organizational, provider, and youth/family levels. Our use of qualitative methods allowed us to understand the contextual factors associated with referrals from the perspectives of training participants. Qualitative methods provide detailed descriptions or narratives regarding the impact of the training on referrals, including trainees' perceptions and experiences in participating in the intervention (Creswell, 2011). Additionally, this study's focus on an urban initiative enriches the literature by exploring perspectives of provides who work predominantly with low-income, youth of color. Our study had two main objectives. First, we obtained participants' perspectives on how participation in a nine-month, trauma-informed care training intervention influenced their capacity to make referrals to trauma-specific services. Second, we explored participants' perspectives on factors external to the training intervention that supported or hindered their ability to link traumatized youth with appropriate services.

4.2 Methods

4.2.1 Study Context

After the Baltimore unrest in April 2015, the Baltimore City Health Department, together with its quasi-governmental partner Behavioral Health System Baltimore, developed the Healing Baltimore initiative with support from the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Mental Health Services, National Center for Trauma Informed Care. An important commitment to Healing Baltimore was the pledge by former Baltimore City Mayor Stephanie Rawlings-Blake in July 2015 to have all frontline city workers trained in TIC, making Baltimore the first U.S. city aiming to provide TIC training for all government employees.

The Baltimore City Health Department (BCHD), in collaboration with SAMHSA's National Center for Trauma Informed Care (NCTIC) and Behavioral Health System Baltimore (BCHB), led a nine-month comprehensive, evidence-based trauma-informed implementation training and coaching collaborative to agencies across Baltimore City. SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach (SAMHSA, 2014) provided the framework for this training intervention. NCTIC consultants conducted the monthly training at the BHSB office, and focused on educating and providing technical assistance to participants in implementing the six TIC principles outlined by SAMHSA: 1) Safety, 2) Trustworthiness and Transparency, 3) Peer Support, 4) Collaboration and Mutuality, 5) Empowerment, Voice and Choice, and 6) Cultural, Historical and Gender Issues.

Under this multi-systemic, multi-agency collaborative, government agencies and youth-serving organizations across Baltimore City participated in several activities

including a series of monthly technical assistance, coaching, and feedback sessions from national trauma experts on how to utilize trauma-informed practices at their agency. Participants represented a wide range of government agencies and nonprofit organizations that interact with traumatized persons. Participating agencies can be categorized as falling within the following domains: Law Enforcement, Social Services, and Health and Education. Participants in the nine-month training (N=90) were identified by their respective agencies to lead and implement trauma-informed approaches at their respective workplaces. All participants were over 18 years of age and English speaking. The Institutional Review Board at the Johns Hopkins Bloomberg School of Public Health approved all study procedures, and all research participants provided informed consent.

4.2.2 Sampling and Recruitment

As part of a larger mixed methods observational study (N=88) examining the effects of the TIC training on organizational and individual level factors, including knowledge, attitudes, and beliefs, associated with implementation of TIC policies and practices, a subset (n=16) of participants completed a 30-45 minute, semi-structured interview two months following completion of the training. This study reports on findings derived from interviews with that subset of TIC participants. BCHD and BHSB staff overseeing the TIC intervention described the study to all trainees who met the inclusion criteria, asked them if they were interested in learning more about the study, and shared the contact information of interested trainees with the research team. Snowball sampling was used to recruit additional participants; initial interviewees were asked to recommend others from their respective agencies who might be interested in

participating in the training. The lead author explained the study and obtained informed consent. Interviews were digitally recorded and transcribed. Any identifying information, such as the names of individuals or places, was removed in the transcription process.

4.2.3 Measures

This study focuses on a subset of referral-related questions from the semi-structured interview guide. Sample questions are: *Does your organization have the capacity to provide trauma-specific treatment or refer to appropriate trauma-specific services? How does your organization identify community providers and referral agencies that have experience delivering evidence-based trauma services? How has your opinion of traumatized youth access to services changed because of the training? What are some of the barriers in traumatized youth being able to access treatment and/or trauma-related services?*

4.2.4 Qualitative analysis

Qualitative analysis was conducted by two trained coders. The coders independently used the constant comparative method, moving iteratively between codes and text to derive themes related to participant perceptions of the intervention. Originally developed as part of the grounded theory method of Glaser and Strauss (Glaser & Strauss, 1967), the constant comparative method involves selecting one component from the data, such as a theme, and comparing it to the rest of the data to develop conceptualizations about possible relations across various data components (Boeije,

2002). We focused our attention on responses related to how the intervention influenced participants' organizational capacity to provide treatment or make referrals to trauma-related services, as well as perceived barriers and facilitators to traumatized youth being able to access services.

4.3 Results

Most of the sixteen participants in this qualitative substudy were female (87.5%) and African-American (81.3%). The majority worked in the social services sector (75.0%), while other participants worked in law enforcement (12.5%) and other government agencies (12.5%).

The following section discusses themes that emerged from the qualitative interviews. We identified three categories of themes: 1) organizational and provider capacity to provide trauma treatment or to make referrals to trauma-specific services, 2) barriers to youth accessing trauma services, and 3) suggestions for improving coordination of care and referrals. The themes within each of these three categories are discussed in detail below.

4.3.1 Organizational and provider capacity to provide trauma treatment or to make referrals to trauma-specific services

Some participants reported that their participation in the TIC training made them *more likely to refer traumatized youth to the appropriate services* (n=4). One participant from social services reported:

> It has increased the likelihood of the referrals because of the fact that you get a greater sense of what it takes to refer a client to another program, what expectations are, and how they differ from our program… because of the training, you now know of other services that might better suit your clients.

Similarly, another social services participant described an increase in referrals of affected families as having taken a greater priority at her agency:

> I believe our referrals have increased. I think we are referring for therapeutic services more often, and probably as a direct result of the trauma-informed care training. That is high priority for us to ensure that our families are getting community mental health services.

Another interviewee from social services explained how the cross-sector, multi-agency design of the training was an opportunity for her agency to network with other agencies that have the capacity to support traumatized youth:

> If it's another agency that we've made connections with, sometimes when we do workshops or programs, we'll invite them in and they can speak to clients as a whole and not just target a specific individual and discuss the resources that are available.

In contrast, the majority of participants (n=12) noted no major change in their organization's response to address the needs of trauma-affected youth for a variety of reasons, as summarized below. Several participants explained that their agency still *lacked the capacity to provide treatment or make referrals* (n=5). As one social services professional put it, "I don't think there are enough trained clinicians in trauma. I think that the clinician should be a trauma specialist and they don't exist. Your psychotherapists

have treatment modalities, but that doesn't make them a specialist in trauma." Another participant from law enforcement described the structural challenges, specifically lack of a formalized referral system, which hindered him and his agency from being able to connect traumatized youth with the appropriate services. He explained:

> I don't know that we have a good transition or follow-up program from a city government point of view to where some kind of social work organization or youth work organization follows up with those three witnesses to kind of talk, you know, talk to them about the trauma they're involved in, the shooting victim, and the trauma that he was involved in. The state's attorney's office does have resources and I guess counseling and different things, but I don't' know that if it gets tied in real well.

Another interviewee from social services described that the challenges lay in not having been informed of the resources that exist to support youth that have experienced trauma:

> I don't think that anything has changed because we still are not aware of the resources. It's almost like there is nothing to change because other than the available providers, out of the training, we weren't even given a list of providers that do trauma informed care that we could use to refer.

A few participants reported that their participation in the *TIC training made no difference in their agency's referrals of traumatized youth since their agency had already taken actions to formalize a means of connecting affected youth to the appropriate trauma treatment and services* (n=3). One participant from social services noted:

> No it (referral process post-training) hasn't changed because they um, once they're here I meet with them individually and if they've got kids or family or

children, school-aged, it's standard protocol for me to refer the kids for counseling, and that's always been, you know, get their babies evaluated.

Similarly, another social services interviewee explained how referring youth in need of special services was already part of her professional routine:

> I speak with every family or unaccompanied minor or youth and I make sure that they're getting services and a lot of that would pertain to getting therapy in schools and a referral would be made and knowing their rights as a young unaccompanied minor or parents knowing their rights as a homeless parent. And so you know advocating with them. I feel like it just reinforced what we are doing, and I know that it's helped keep it in the forefront I just don't have any specifics. I don't think that we have changed anything that I can think of at the trainings.

4.3.2 Themes of barriers to youth accessing trauma services

The most commonly reported barrier to youth accessing trauma services was *lack of coordination among services* (n=5). One social services participant described that many clients are served by multiple systems, but that those systems do not engage with each other: "I think that the other piece is that in working in health welfare there is such a duplication, like so many clients who are involved in services in so many areas. So then there is a lack of collaboration between services." A participant who works in for the parks and recreation sector described having a lack of knowledge of where to refer, in addition to not knowing when making a referral is appropriate:

> I don't think that there's any reluctance or resistance. It's the knowledge, not knowing where exactly to refer, not knowing what exactly the situation may be,

> we experience children who may be homeless, but there is some resistance on the parents part in exposing that. There are some barriers in establishing the trust to know that the person needs that type of service.

Another social services participant pointed out the inconsistency in the availability of trained personnel to support traumatized youth: "The barriers to these programs are more systemic issues, like Baltimore City schools when the kids are in the schools, maybe the therapist that they see isn't there, how is the school handling that." A member of law enforcement reported a similar challenge with competing responsibilities that make it difficult to take the time to refer traumatized youth to needed treatment and services: "We, as police, don't interact with them (other services), especially in Baltimore City because we're on to the next crime, we're on to the next shooting. The staffing in our department is falling, so everybody's working doubles."

Other participants described *workforce shortage* as a barrier to ensuring that traumatized youth get referred (n=4). One social services worker emphasized the lack of financial resources for hiring additional staff: "It comes down to money, I need additional staff, I need to lower the staff to client ratio, I need to increase funding so that clients don't have financial stress in addition to traumatic stress. I need to have resources out in the community that work with clients who have trauma." A participant from the social services sector noted that even when traumatized youth are linked to the appropriate services, the staff shortage prevents youth from being able to access care in a timely, consistent manner. She explained:

> Let's say there's a client and they're feeling depressed and they're put on medication – being able to get the medication, prescribe, … I mean, it takes

> forever to have an appointment with a psychiatrist, right? Plus a counselor. And then they only see them sometimes once a month. You know, it's not intensive enough.

Socioeconomic constraints of traumatized youth and families themselves are key barriers impeding access of traumatized youth to treatment and services, according to some of the interviewees (n=4). One social services worker pointed out the logistical barrier in traumatized youth being able to access service, particularly amidst other familial demands: "Transportation is the biggest one. I'm looking for a therapist that will go into the community. Because if they are able to go to the home of the family, then transportation is no longer an issue nor is child care because children are home." Another social services worker expanded on this point by noting a shortage of trained staff to assist trauma-affected youth and families:

> There are many, including agencies to which we refer clients have waitlists, lack of funding, and staff shortage. Also, physical access – distance & lack of transport. They may have a waitlist or they may not have funding or they may not have someone available. Like for instance, I referred a client for mental health services to this one professional but they were too far for them to get to, like there wasn't a bus line so we had to look for something else. So it was not only access, it was how to get there.

Another provider from the social services sector described the challenges that traumatized youth and their families face in navigating the healthcare system as a structural barrier to care:

> The medical assistance. Their coverage. Because most of them that come in have already been connected to a therapist and just lost contact and their name is still in the system with the previous agency. By the time I get ready to refer them to a new therapist they have to contact, it's up to the client to contact the old therapist and discharge them when half the time they don't even remember where the office was, who the therapist was, because they were so young.

4.3.3 Themes of suggestions for improving coordination of care and referrals

Participants proposed several solutions for how to improve traumatized youth's access to appropriate treatment and services. Several participants suggested the *development of a formalized system to link service agencies* (n=6). One social services professional provided the following example from healthcare to illustrate this approach:

> Hopkins uses a software called EPIC and anyone who comes into the system and is in EPIC, their chart provides you with what services they are provided from what department. I don't know if the counties could do it by county. But a software that would let people know what services, especially for the Medicaid patients who are sent all over the place, wouldn't it make sense to have their Medicaid number in the system to show what services they're receiving and where, which would hold people responsible for collaborating with each other.

Another social services worker explained that such a formalized system would allow agencies to learn from the best practices of other organizations that are already successful in supporting youth that have experienced trauma: "I would like to know because again, there are different either shelters or facilities that do different things with their clients so I

just want to see the differences they made with them." A professional from parks and recreation proposed that something as basic as a directory of available providers and services would help her agency in linking youth with a history of trauma to treatment and services:

> What we were hoping that comes out of the training is a directory of services, I know a few organizations locally that we can refer to that are attached to a school. We work with a school and we work together with the school therapists that participants have. But we really hope that we can get a directory so that we can refer because we don't have those services and we aren't trained to provide those services.

A few participants emphasized the importance of *educating clients about trauma* and explained that the challenge was not solely in improving organizations' and providers' capacity to be trauma-informed, but that part of the responsibility is with the youth and families (n=2). One social services provider described the normalizing of trauma among youth and families that needs to be unlearned: "They (clients) need to be educated. Most of them have trauma. It's like for them (clients), they don't even live like they've had trauma. They just don't see how that it's trauma-- it's like they're normal." Similarly, another professional from the social services sector expanded on the importance of educating clients about trauma since some of their clients' actions can contribute to the re-traumatization of other youth and families:

> I think it would be different if clients were required to participate in services. Clients aren't required to attend any services other than attended case management sessions. If I have a client and they live in a single room occupancy

building and because of their trauma and their neighbors' trauma they are always fighting, I can't require them to go get mental health treatment to deal with their trauma and their triggers so we're kind of backed into a corner in that respect.

Other participants reported the need to expand the availability of TIC training to all personnel who interact with youth that have experienced trauma (n=2). One social services participant said, "I just pray that not only people in social work still get the trauma-informed care, I meant everyone on the front line really should have it." Another social services interviewee described the challenge in working with other staff who have not yet been trained in TIC and subsequently, are unable to competently address the needs of youth that have experienced trauma:

> Like, we have two new people and they've never been to where the clients reside, but clients come in here but they still don't know-- they're making assumptions or putting resources together for them but they don't know how they're living.

4.4 Discussion

Our study highlights that providers perceived contextual factors as influencing whether agencies and individual providers were better able to support traumatized youth in accessing appropriate trauma treatment and services after participating in a TIC training. There is a limited number of studies that have assessed barriers and facilitators to TIC referrals. Moreover, to our knowledge, there has been no prior evaluation of the SAMHSA TIC training intervention as it relates to the former. Although youth-serving organizations and providers may become more trauma-informed as a result of participating in the TIC intervention, barriers external to training including lack of

coordination across systems, workforce shortage, and funding issues may make it difficult for agencies and individual providers to refer traumatized youth to appropriate services. Moreover, even when referrals are made, additional factors including transportation and insurance coverage may serve as structural barriers for youth and families to be able to access needed trauma treatments and services.

Similar to providers, families of traumatized youth also have competing demands that make it difficult for traumatized youth to access the needed treatment and services. Some participants described the process of re-engaging youth who previously received treatment and services as cumbersome. More specifically, the fragmented structure of the healthcare system poses a challenge for youth with a history of trauma to transition from one provider to another, consequently delaying treatment.

An important point raised during the interviews by a few participants, which was not reported in prior studies on this topic, is the concept of normalizing trauma. Given the high prevalence of polytrauma, as noted earlier in this paper, some traumatized youth come from families where experiencing traumatic events and their psychological sequelae is not viewed as preventable or addressable but rather is accepted as a part of life. The perceived inevitability of trauma and doubt about the utility of treatment may serve as a barrier to traumatized youth getting the help that they need in some families. Thus, participants suggested that youth and families should also be educated in TIC and encouraged to seek appropriate treatment and services. Lastly, participants brought up the salient point of the need to educate their colleagues in TIC. The providers who participated in the TIC training comprised a small percentage of all providers who interact with traumatized youth throughout the city on a daily basis, and participant

responses indicated that training more staff may be necessary in order to shift agency culture and practice. Thus, it may be beneficial to provide the TIC intervention to more providers at each agency to produce meaningful improvements in agency referral practices.

Findings from this study suggest there is great variation in organizational and provider capacity to provide treatment or make referrals. Some participants reported an increased likelihood of referrals as a result of interacting and networking with providers from other agencies that have the resources to adequately address the needs of traumatized youth. This is consistent with the only two prior quantitative studies to our knowledge that have examined organizational and provider factors associated with referrals, which also found that participants endorsed improved organizational and provider readiness to refer traumatized youth after participating in a TIC training (Kramer, 2012; Kerns, 2016). Moreover, some participants in this study described how the training allowed their agencies to recognize the importance of linking youth with a history of trauma to appropriate services, thus, influencing these organizations and providers to make referrals a higher priority.

Other participants reported no change in their capacity to provide treatment or make referrals. Some participants explained that the training fell short of equipping participants with tangible resources, specifically a directory of treatment and service providers specialized in working with traumatized youth. Thus, while some agencies were able to leverage the training as an opportunity to connect with other organizations, other providers were still unaware of the resources that were available in the community. In addition, participants described challenges beyond the scope of the TIC training. For

example, some participants noted the shortage of personnel trained in working with traumatized youth, as well as the lack of formal connections between child-serving systems, which made it difficult for participants to implement lessons learned from the TIC training to better support traumatized youth through referrals. The barriers highlighted by these participants are consistent with prior studies (Fraser, 2014; Lang, 2016), which also found that factors external to the training, specifically workforce shortage and lack of awareness of available specialized treatment and services, were barriers to referring traumatized youth. Implementation science theories (Aarons, 2011; Palinkas, 2008) have also highlighted the importance of considering the outer and inner contexts (i.e. levels) of public sector service systems in influencing the implementation process of novel practices. Thus, in addition to internal factors including organizational and individual provider characteristics, outer context factors such as inter-organizational networks can also support or hinder successful referral of traumatized youth.

While some participants noted no change in youth referrals due to structural challenges, others explained that referring traumatized youth was already a standard practice at their organization. Although participants who were already familiar with both the importance and process of making referrals to appropriate trauma treatments and services may not have gleaned anything novel from the training with regards to referrals, it is still plausible that their participation in the training may have benefitted their less knowledgeable counterparts from other participating agencies in the training who may have learned tips and strategies for making referrals to appropriate trauma treatments and services .

Although recognizing the signs of trauma and responding appropriately to traumatized youth are part of the basic principles of TIC, some participants still reported feeling unprepared to identify situations in which making a referral would be appropriate. Other participants explained that referrals were not consistently made at their agencies because engaging with other service systems was not part of their routine responsibilities, and there were other competing professional priorities that took precedence over referring traumatized youth.

Given that the lack of communications between child-serving systems was reported to be a major barrier to organizations and individual providers making referrals, the development of a structure that formally connects these agencies and providers with specialists would appear to be a logical step toward improving trauma treatment access. Participants pointed out that the healthcare field, in which a given individual may be seen by multiple providers, could serve as a model for linking disparate service systems to more holistically address the needs of youth who have experienced trauma. While a sophisticated infrastructure as used in healthcare may be time- and resource-intensive to develop and implement, participants suggested that in the interim, a directory of specialists trained to address the needs of traumatized youth could be a starting point for helping participants be better equipped to respond adequately to traumatized youth. It is also important to acknowledge that the number of specialists with expertise in working with traumatized urban youth is currently limited. Initiatives to increase this pool of specialists are also critical.

4.4.1 Limitations

This study has some limitations. Although we attempted to recruit providers across all participating sectors of the TIC training for this qualitative study, those who volunteered were primarily from the social services sector, with a few additional individuals from law enforcement and other government agencies. As a result, our sample was not representative of all intervention participants, and we may not have captured all key perspectives on the TIC training. Our approach was exploratory, however, striving for depth of understanding and not representativeness. In addition, although the qualitative approach of this study provided a nuanced understanding of perceived barriers to making referrals, we were not able to assess whether the training had an effect on actual referrals made. Collecting and assessing data on referrals posed a methodological challenge as participants in the training represented a range of sectors, each with different types of referral protocols and practices. Several of the participating organizations, including those from law enforcement and parks and recreation, do not keep track of the number of traumatized youth they encounter, let alone referrals that are made to trauma treatment and services.

4.5 Conclusion

4.5.1 Implications for practice and policy

The current study has implications for practice. Findings indicate that there is variation in service providers' knowledge and use of referral systems. Partnering agencies and individual providers more familiar with referral resources and processes can support the transfer of knowledge and best practices to more novice organizations and providers.

In addition, although the training focused on helping youth-serving agencies and personnel become more trauma-informed, families can either support, or hinder traumatized youth from accessing services, particularly by normalizing trauma. Thus, there may be a need for additional trainings that focus on educating families of traumatized youth about the value of connecting youth to trauma treatment and services. Moreover, as part of youth- and family-oriented TIC trainings, there is a need for wraparound services that address these population's needs, such as transportation and childcare, to minimize barriers that could hinder youth from getting to their appointments with trauma specialists.

The study also has implications for policy. Although TIC trainings can raise awareness about the importance of responding appropriately to the needs of traumatized youth through referrals, additional structural challenges must be addressed to create an effective youth referral system. Increasing the workforce specialized in working with traumatized youth is critical in order to address the current lack of mental health providers in this area. There is also a need for funding to support the development of an infrastructure that formally links child-serving agencies with each other. Such a system would not only facilitate the referral of youth to trauma treatment and services, but also better monitor outcomes for youth following referral.

4.6 References

Aarons, G.A., Hurlburt, M., & Horwitz, S.M. (2011). Advancing a conceptual model of evidence-based practice implementation in public service sectors. *Admin Policy Ment Health*, 38, 4-23.

Child & Adolescent Measurement Initiative (2014). *Lifelong health, school success and adverse childhood experiences among Maryland & Baltimore's children.* Data Resource Center, supported by Cooperative Agreement 1-U59-MC0680-01 from the U.S. Department of Health & Human Services (HHS). Health Resources & Services Administration, Maternal & Child Health Bureau.

Cohen, J., Mannarino, A., Kliethermes, M., & Murray, L. Trauma-focused CBT for youth with complex trauma. (2012). *Child Abuse & Neglect*, 528-541.

Conners-Burrow, N.A., Kramer, T.L., Sigel, B.A., Helpenstill, K., Sievers, C., & McKelvey, L. (2013). Trauma-informed care training in a child welfare system: moving it to the front line. *Child and Youth Services Review.* 35, 11, 1830-1835.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research.* (2nd ed.). Thousand Oaks, CA: Sage.

Fraser, J.G., Griffin, J.L., Barto, B.L., Lo, C., Wenz-Gross, M., Spinazzola, J., Bodian, R.A., Nisenbaum, J.M., & Bartlett, J.D. (2014). Implementation of a workforce initiative to build trauma-informed child welfare practices and services: Findings from the Masachusetts Child Trauma Project. *Children and Youth Services Review*, 44, 233-242.

Gurwitch, R., Messer, E., Masse, J., Olafson, E., Boat, B., & Putnam, F. (2016). Child-Adult Relationship Enhancement (CARE): an evidence-informed program for children with a history of trauma and other behavioral challenges. *Child Abuse & Neglect*, 53, 138-145.

Henry, J., Richardson, M., Black-Pond, C., Sloane, M., Atchinson, B., & Hyter, Y. (2011). A grassroots prototype for trauma-informed child welfare system change. *Child Welfare*, 90,6, 169-186.

Kerns, S.E., Pullman, M.D., Negrete, A., Uomoto, J.A., Berliner, L., Shogren, D., Silverman, E., Putnam, B. (2016). Development and implementation of a child welfare workforce strategy to build a trauma-informed system of support for foster care. *Child Maltreatment*, 21, 2, 135-146.

Ko, S., Ford, J., Kassam-Adams, N., Berkowitz, S., Wilson, C., Wong, M., Brymer, M., & Layne, C. (2008). Creating trauma-informed systems: child welfare, education, first responders, health care, juvenile justice. *Professional Psychology: Research and Practice*, 39, 4, 396-404.

Kramer, T., Sigel, B.A., Conners-Burrow, N.A., Savary, P.E., & Tempel, A. (2013). A statewide introduction of trauma-informed care in a child welfare system. *Child and Youth Services Review.* 35, 1, 19-24.

Lang, J.M., Campbell, K., Shanley, P., Crusto, C.A., & Connell, C.M. (2016). Building capacity for trauma-informed care in the child welfare system: initial results of a statewide implementation. *Child Maltreatment*, 21(2), 113-124.

Lucio, R. & Nelson, T. (2016). Effective practice in the treatment of trauma in children and adolescents: from guidelines to organizational practices. *Journal of Evidence-Informed Social Work*, 13, 5, 469-478.

Palinkas, L.A., Schoenwald, S.K., Hoagwood, K., Landsverk, J., Chorpita, B.F., & Weisz, J.R. (2008). An ethnographic study of implementation of evidence-based treatments in child mental health: First steps. *Psychiatric Services*, 59,7, 738-746.

SAMHSA's Trauma and Justice Strategic Initiative (2014). *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach*. Retrieved from http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf.

CHAPTER 5. DISCUSSION

This chapter presents an overview and key findings for each of the three studies. A description of the limitations and strengths of the dissertation follows. This chapter concludes with a discussion of the implications of this dissertation for public health policy, research and practice.

5.1 Study Overviews and Key Findings

5.1.1 A Mixed Methods Assessment of the Usefulness of Baltimore City Health Department's Trauma-Informed Care Training Intervention

The study described in Chapter 2 examined the impact of a nine-month, trauma-informed care (TIC) training intervention on participants' self-reported changes in knowledge about trauma, attitudes towards traumatized individuals, and beliefs in capacity to provide referrals to trauma services. This is one of only a handful of studies evaluating TIC training interventions, and, to the best of our knowledge, it is the first formal evaluation of SAMHSA's TIC training model. In addition, this study is only the second to evaluate a TIC training intervention conducted across multiple sectors, including agencies outside the social services sector, which has more familiarity with how to work with traumatized youth.

Overall, we found significant improvements in participants' self-reported changes in knowledge about trauma and trauma-informed care principles and attitudes towards trauma survivors. However, there was no significant change in participants' beliefs about their capacity to provide TIC. In addition, five themes pertaining to perceptions of the

usefulness of the TIC training were identified: the training provided a valuable framework for understanding TIC, useful lessons were learned from other participants, there is a need for outreach to upper-level management, the training lacked real-life applicability, and there was a lack of guidance regarding next steps. In sum, we found that the training program can improve knowledge and attitudes towards TIC and may serve as a starting point for improving providers' capacity to work with youth that have experienced trauma. At the same time, certain augmentations may be needed to enhance the utility of training, including having upper-level management play a more active role in the intervention, providing booster sessions to sustain interest and improve provider capacity to provide TIC services, and incorporating breakout sessions during the training to allow for space and time for providers to share best practices with each other.

5.1.2 Organizational and provider level factors in implementation of trauma-informed care after a city-wide training: An explanatory mixed methods assessment

The study presented in Chapter 3 assessed changes in organizational culture and provider-level quality of life, including providers' compassion satisfaction and fatigue (burnout and secondary traumatic stress), after participating in the nine-month TIC implementation training described in Chapter 2. This study fills gaps in the literature on TIC by examining the impact of TIC trainings on contextual variables, including organization- and provider-level factors. To our knowledge, only three studies have evaluated both organizational and provider level factors as outcomes, all of which have been conducted with child welfare personnel. Thus, our study is the first to assess how a

TIC training intervention directly affects organizations and individuals providing TIC services across multiple service sectors.

There was a significant increase in participants' reported compassion satisfaction as well as compassion fatigue. Additionally, four major themes related to organizational-level and provider-level factors emerged from our review of the semi-structured interviews: implementation of more flexible, less punitive policies towards clients, adoption of a trauma-informed workplace design, heightened self-awareness of providers' own traumatic stress and need for self-care, and a greater sense of camaraderie and empathy for colleagues. In conclusion, the findings for this study suggest that while providers became more aware of their own personal stress, the training contributed to an overall improvement in provider-level perceptions of the quality of the work environment, including improved interactions with their colleagues and communications with traumatized youth.

5.1.3 Providers' perceptions of barriers and facilitators for youth access to trauma services

The study described in Chapter 4 applied qualitative methodology to explore barriers and facilitators identified by providers in TIC training related to screening, identifying, and referring youth that have experienced trauma to appropriate treatment and services, as well as perceived contextual factors associated with referrals. Although previous studies have suggested that TIC trainings are an effective starting point for providers to identify and connect traumatized youth with needed treatment and services, this study contributes to the literature by considering barriers to referrals at the level of

youth and families and specifically focusing on a TIC training intervention targeting providers that work in urban communities of color.

Three categories of themes emerged from the qualitative interviews: organizational and provider capacity to provide trauma treatment or to make referrals to trauma-specific services, barriers to youth accessing trauma services, and suggestions for improving coordination of care and referrals. While some participants reported being more likely to refer traumatized youth to the appropriate services, others endorsed that the training made no difference since they either were already making referrals, or their respective agency still lacked the capacity to provide treatment or make referrals. Regarding barriers to youth accessing trauma services, the most commonly endorsed barriers were lack of coordination among services, workforce shortage, and socioeconomic constraints of traumatized youth and families. Participants suggested that the development of a formalized system to link service agencies, educating youth and families about trauma, and expanding the availability of the TIC training as potential solutions for improving coordination of care and referrals. These findings suggest possible directions for improving the TIC training intervention's impact on youth outcomes, specifically developing an infrastructure that formally links child-serving agencies with each other, strengthening service providers' knowledge and use of referral systems, and educating families of traumatized youth about the value of connecting youth to trauma treatment and services.

5.2 Limitations and Offsetting Strengths

One of the main limitations of the studies presented in Chapters 2 and 3 is the lack of a randomized design or control, which limits the ability to estimate intervention effects. Due to funding and timeline constraints, identifying comparison individuals at each of the participating agencies was not feasible at the time the studies were conducted. The lack of uniform criteria for how training participants were recruited by their respective agencies is another limitation of the studies in Chapters 2 and 3, since the personnel that participated in the TIC training intervention may not have been representative of the other service providers at their respective organizations. The reliance on participants' self-report raises the possibility of social desirability bias in Chapters 2 and 3. Additionally, the studies in Chapters 2 and 3 were underpowered to detect and compare differences in intervention treatment effects among the various service sectors that participated in the TIC training intervention.

A key limitation of the studies in Chapters 2, 3, and 4 is that the sample we were able to recruit for the semi-structured interviews was not representative of all training intervention participants. The political climate at the time these studies were conducted made it challenging to arrange and conduct interviews with other service providers from the training intervention, particularly participants from law enforcement. A limitation unique to the study in Chapter 4 is that we were unable to assess whether the training intervention had a direct effect on actual referrals made because the participating agencies differed in the sophistication of their referral tracking systems, and some agencies did not even track how many youth with a history of trauma they encountered.

Limitations not withstanding, the studies presented in this dissertation have several strengths. The primary strengths of the studies reported in Chapters 2 and 3 are the methodology used and the data source. The mixed methods approach used in the studies presented in Chapters 2 and 3 allowed for a more nuanced understanding of the impact of the TIC training intervention. Additionally, the studies were strengthened by the diversity and cross-sector representation of the training intervention participants, which reflects multiple services systems that engage with trauma-affected youth in Baltimore City. The main strength of the study reported in Chapter 4 is the use of qualitative data to obtain an in-depth, holistic understanding of the factors that hinder or support referral of traumatized youth to appropriate treatments and services at the levels of the organization, service provider, and youth and families.

5.3 Implications

Given growing interest in TIC training interventions as a means of addressing the high prevalence of childhood trauma nationwide, particularly in inner-cities, the findings reported in Chapter 2 suggest that TIC training interventions are a viable means of improving participants' knowledge about trauma and attitudes towards individuals who have experienced trauma. TIC training interventions merit additional research attention. Future longitudinal studies can examine if immediate positive effects on participants' knowledge and attitudes are sustained over time. Moreover, additional studies are warranted to assess the spillover effects the intervention may have on trainee's colleagues who did not participate in the training.

Our study also has implications for public health practice and policy. Although the study suggests that the cross-sector, multi-agency design of the intervention was well received by participants, we also found that there was uncertainty regarding next steps upon completion of the training. Thus, breakout groups that allow participants to meet with other providers from their respective sectors to brainstorm and discuss concrete approaches for helping their workplace become more trauma-informed should be considered in future iterations of the training intervention. Last, the participation of service providers across several sectors from social services, law enforcement, health and education, and other government agencies, was made possible through the joint leadership of the Baltimore City Health Department and the Mayor's Office. Thus, our study supports the need for city-level leadership to shift trauma practices and address childhood trauma in an integrated fashion.

The results reported in Chapter 3 add to the TIC literature by suggesting that the TIC training intervention also had significant effects on improving organization factors such as safety climate and morale and teamwork climate and collaboration, as well as provider-level factors, particularly compassion satisfaction. This research supports existing implementation science models by highlighting the importance of organizational culture and climate, and staff morale, as key elements for ensuring effective implementation of changes such as TIC policies and practices, in an organization. In addition, our study also supports and expands on previous research underscoring the high prevalence of secondary traumatic stress and burnout among service providers. Thus, future research assessing the impact of the TIC training intervention on providers' own trauma, including subsequent effects on the client-provider relationship, is warranted.

Moreover, in alignment with both implementation science and socio-ecological models, our research suggests there is a need to engage youth and families. The developers of the TIC training intervention should consider designing future trainings that are oriented towards educating youth and families about trauma. In terms of policy, the results from Chapter 3 suggest that the development of an incentives structure, such as allocation of professional credits by licensing boards, can further support organizational and provider implementation of TIC practices.

Finding from the third study (Chapter 4) support and build upon the only two prior studies to our knowledge that have examined organizational and provider level factors associated with referrals (Kramer, 2012; Kerns, 2016). Consistent with those studies, we also found some level of reported improvement in organizational and provider readiness to refer traumatized youth upon completion of a TIC training intervention. This study makes a unique contribution to the literature by acknowledging the barriers and facilitators to accessing trauma treatment and services at the level of youth and families. Thus, in addition to the need for youth- and family-oriented TIC trainings as described above, the current study also suggests the need for wraparound services that address the needs of traumatized youth and their families, such as transportation and daycare, which would otherwise hinder youth from being able to attend their treatment appointments and develop a therapeutic relationship with trauma specialists. In terms of policy implications, the results reported in Chapter 4 highlight the structural challenges that impede providers from being able to make successful referrals. Thus, not only is there a need for financial support to develop an infrastructure that formally links child-serving agencies; there is also a need to expand the workforce

specializing in working with traumatized youth to ensure that once a referral is made, youth that have experience trauma are seen in a timely manner.

5.4 Conclusions

In summary, this research sought to advance understanding of the impact of the Baltimore City Health Department's citywide, cross-sector TIC training intervention, the first of its kind in the nation. We sought to gain a better understanding of the usefulness of the training intervention for service providers from different sectors, as well as whether the training promoted any significant change in implementation factors, including organization and provider level outcomes. In addition, we were interested in unpacking the barriers and facilitators that providers endorsed that could either support or hinder traumatized youth from being able to access appropriate treatments and services. We found that the training intervention contributed to participants' self-reported improvement in TIC-related knowledge and attitudes and enhanced organizational culture and provider-level compassion satisfaction. Findings from this study have important implications for future iterations of the training intervention, particularly the need for increased engagement of upper level management from the different agencies, as well as the involvement of youth and families. This research extends our understanding of TIC and suggests directions for future efforts in public health research, practice, and policy.

CURRICULUM VITAE

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EDUCATION

Ph.D., Public Health, 2017
Department of Mental Health, Johns Hopkins Bloomberg School of Public Health,
Baltimore, Maryland
Dissertation: Addressing Trauma in Urban Youth: Evaluating the Implementation of Baltimore City Health Department's Citywide Trauma-Informed Care Training Intervention
Dissertation Advisor: Tamar Mendelson, PhD

M.Sc., Medical Sciences, 2012
Harvard Medical School,
Boston, Massachusetts

B.A., Ethnic Studies, 2006
University of California, Berkeley
Berkeley, CA
Honors Thesis: Beyond Genes and Frying Pans: Heart Disease with the Filipino Community of San Francisco

GRANTS/ FELLOWSHIPS

2016-2018	*F31 National Research Service Award* (PI: Damian) **Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) at the National Institutes of Health (NIH)**
2015-2017	*Student-Community Partnership Small Grants Program* (PI: Damian) **Johns Hopkins Urban Health Institute**
2015	*Social Entrepreneurship Fellowship Program* **StartingBloc**
2015-2016	*Truman Democracy Fellows Program* **Harry S. Truman Scholarship Foundation**
2015-2016	*T32 Psychiatric Epidemiology Training (PET) Program* **National Institute of Mental Health (NIMH) at the National Institutes of Health (NIH)**
2015	*Health Resources and Services Administration (HRSA) Trainee Fellowship Program* **Office of Public Health Practice and Training at Johns Hopkins Bloomberg School of Public Health**
2014-2015	*T32 Drug Dependency Epidemiology Training (DDET) Program* **National Institute on Drug Abuse (NIDA) at the National Institutes of Health (NIH)**
2008-2009	*Greenlining Leadership Academy Fellowship Program* **The Greenlining Institute**

2008-2009 *Young People For Leadership Academy Fellowship Program*
Young People For, People for the American Way
2006-2007 *Truman-Albright Fellows Program*
Harry S. Truman Scholarship Foundation
2004-2005 *Public Service Fund Grant*
The Associated Students of the University of California

AWARDS/HONORS

2017 *Lucy Shum Memorial Scholarship Fund*
Johns Hopkins Bloomberg School of Public Health
2016 *Student Travel Award*
Society for Prevention Research
2010 *International Research Scholarship*
Office of Enrichment Programs at Harvard Medical School
2009 *Community Leadership Scholarship*
Sojourners/Call to Renewal
2007 *Eugene duPont Scholars Honorarium*
Eugene DuPont Distinguished Scholars Program at University of Delaware
2006 *Phi Beta Kappa*
Phi Beta Kappa Honor Society
2005 *California Truman Scholar*
Harry S. Truman Scholarship Foundation
2005 *New Leader Scholar Award*
New Leader Scholarship Fund
2003 *Osher Travel Abroad Program Scholarship*
Institute of International Education
2002-2006 *Incentive Awards Program Scholar*
Incentive Awards Program, University of California, Berkeley
2002-2006 *Leadership Award*
University of California, Berkeley Alumni Association
2002 *Horatio Alger California Scholar*
Horatio Alger Association

PROFESSIONAL INVOLVEMENT

2017 *Addictive Behaviors*, Reviewer
Psychological Trauma: Theory, Research, Practice, and Policy, Reviewer
2016-present Society for Prevention Research, Reviewer
Drug and Alcohol Dependence, Reviewer
2015-present American Public Health Association, Reviewer
2015-2016 Johns Hopkins Bloomberg School of Public Health Centennial Planning Committee, Department of Mental Health Student Representative
Johns Hopkins Bloomberg School of Public Health Healing Baltimore Initiative, Department of Mental Health Student Representative

PROFESSIONAL AFFILIATIONS

2016-present	Society for Epidemiologic Research
	Society for Prevention Research
	Society for Research on Adolescence
2015-present	American Public Health Association
	AcademyHealth
2009-present	Massachusetts Medical Society
2006-present	University of California, Berkeley Alumni Association
2005-present	Phi Beta Kappa Honor Society
2005-present	Truman Scholars Association
2002-2006	University of California, Berkeley Biology Scholars Program

PUBLICATIONS

Peer-Reviewed Publications

1. **Damian A.J.**, Mendelson T., & Agus D. (2017). Predictors of buprenorphine success of opioid dependence in two Baltimore City grassroots recovery programs. *Addictive Behaviors*, 73, 129-132.

2. **Damian A.J.** & Mendelson T. (in press). Association of physical activity with alcohol abuse and dependence in a nationally-representative U.S. sample. *Journal of Substance Use and Misuse.*

3. Kane J., **Damian A.J.**, Fairman B., Bass J.K., Iwamoto D.K., & Johnson R.M. (2016). Differences in alcohol use patterns between adolescent Asian American ethnic groups: representative estimates from the National Survey on Drug Use and Health 2002-2013. *Addictive Behaviors*, 64, 154-158.

Chapters and Reports

4. Mendelson T. & **Damian A.J.** (2015). Mindfulness-based approaches for promoting mental health in urban youth. In N. Cohen (Ed.), *Public Health Perspectives on Depressive Disorders*. Baltimore, MD: Johns Hopkins University Press.

5. **Damian A.J**. & Diaz S.F. (2009). *Telemedicine for the new majority in California: a report to the California Program on Access to Care (CPAC).* The California Program on Access to Care, University of California, Berkeley School of Public Health. Berkeley, CA.

6. **Damian A.J.**, Gonzalez N., & Ignacio L. (2009). *Beyond the stimulus: opportunities and challenges in reforming our national healthcare system.* The Greenlining Institute. Berkeley, CA.

PRESENTATIONS

Oral Presentations

1. "Redefining Community Violence." Keynote address given at University of Maryland School of Social Work Trauma-Informed Approaches Interprofessional Winter Course, Baltimore, MD. Jan 2017.

2. "Stress exposure and stress management in urban youth: Perspectives from a school-based yoga and mindfulness study." Oral presentation given at International Symposium for Contemplative Studies, San Diego, CA. Nov 2016.

3. "National Survey of American Life (NSAL) Dataset." *Publically Available Datasets for Psychiatric Epidemiology Lecture.* JHSPH Bloomberg Building, Baltimore, MD. Nov 2016.

4. "Effective Tools of Community Health Practice." *Community Health Planning and Policy Development Program.* Panel moderator at 144th American Public Health Association Annual Meeting, Denver, CO. Oct 2016.

5. "An Innovative, Community-Based Training Model for Supporting Community Health Workers (CHWs) Serving Individuals with Serious Mental Illness and/or Substance Use Disorders." *Methods for training and equipping CHWs to address specific populations panel presentation.* Oral presentation given at 144th American Public Health Association Annual Meeting, Denver, CO. Oct 2016.

6. "Healing Baltimore: An Update on Baltimore City Health Department's Trauma-Informed Care (TIC) Initiative." *Johns Hopkins Bloomberg School of Public Health (JHSPH), Department of Mental Health Centennial Series Seminar.* JHSPH Bloomberg Building, Baltimore, MD. Jan 2016.

7. "Public Health Practice in Baltimore City: Student Panelist." *Johns Hopkins Bloomberg School of Public Health (JHSPH), Department of Mental Health Centennial Series Seminar.* JHSPH Bloomberg Building, Baltimore, MD. Oct 2015.

8. "Women in Leadership: Panelist." *Truman Scholars Association National Conference*. Mt. Vernon Conference Center, Washington, DC. Jul 2015.

9. "Applying to Graduate School and Sustaining Yourself While You're There: Panelist." *New Leader Scholars Retreat.* San Francisco State University, San Francisco, CA. Oct 2014.

10. "Beyond the Stimulus: Opportunities and Challenges in Reforming Our National Healthcare System: Healthcare: Panel Moderator." *Truman Scholars Association National Conference.* National Press Club, Washington, DC. Jul 2009.

11. "Beyond the Stimulus: Opportunities and Challenges in Reforming Our National Healthcare System: Health Fellow Presenter." *The Greenlining Institute 16th Annual Economic Development Summit.* Center at Cathedral Plaza, Los Angeles, CA. Apr 2009.

12. "Health and the Progressive Movement: Workshop Co-Facilitator." *Young People For, People for the American Way Leadership Academy Training.* People for the American Way Foundation Headquarters, Washington, DC. Jan 2009.

13. "Life After Cal: Panelist." *UC Berkeley Incentive Awards Program Leadership Conference.* University of California, Berkeley, Berkeley, CA. Oct 2008.

14. "Growing Up with Parents with Developmental Disabilities: Keynote Speaker." *The Arc of San Francisco 7th Annual Arc Angel Society Breakfast.* City Club of San Francisco, San Francisco, CA. Sept 2008.

15. "Empowering Visions, Empowering Lives: Guest Lecturer." *University of Delaware DuPont Scholars Lecture Series.* University of Delaware, Newark, DE. Mar 2007.

16. "Acknowledging the Role of Faith in Addressing Social Justice and Defending Immigrant Rights: Panel Moderator." *National Grassroots Immigrant Strategy Conference.* American University, Washington, DC. Jul 2006.

Poster Presentations

17. **Damian A.J.** & Agus D. (2016, October). *Predictors of buprenorphine treatment success of opioid dependence in two Baltimore City grassroots recovery programs*. Poster presented at 144th American Public Health Association Annual Meeting, Denver, CO. Oct 2016.

18. **Damian A.J.**, Mendelson T., Gallo J., Mumma L., Farrow O., Wen L.S. (2016, June). *Assessing provider- and organizational-level factors associated with implementation of Baltimore City Health Department's trauma-informed care training initiative.* Poster presented at 2016 AcademyHealth Annual Research Meeting, Boston, MA.

19. **Damian A.J.** & Mendelson T. (2016, April). *Exposure to violence-related stressors in urban adolescents and associations with school functioning*. Poster presented at 2016 Society for Research on Adolescence Biennial Meeting, Baltimore, MD.

20. **Damian A.J.** (2015, December). *Dissemination and implementation of evidence-based trauma-informed care (TIC) in Baltimore City agencies*. Poster presented at the NIH/AcademyHealth 8th Annual Conference on the Science of Dissemination and Implementation: Optimizing Personal and Population Health, Washington, DC.

21. **Damian A.J**. (2015, November). *Association between physical activity and alcohol abuse and dependence: findings from the National Survey of American Life (NSAL*). Poster presented at the 143rd American Public Health Association Annual Meeting, Chicago, IL.

22. **Damian A.J**. (2011, January). *Policy assessment of mental health/psychosocial models for trafficked persons*. Poster presented at the 71st Annual Harvard Medical School Soma Weiss Student Research Day, Boston, MA.

RESEARCH EXPERIENCE

2015-2017 *Principal Investigator* Baltimore, MD
Johns Hopkins Urban Health Institute
- Successfully wrote proposal and acquired 1 of 6 Hopkins UHI Student-Community Partnership Grants.
- Develop and maintain relationships with grant funders, including writing periodic reports to comply with grant requirements.
- Design and lead the IRB-approved evaluation of the socioemotional impact of the Baltimore City-based mindfulness nonprofit, Holistic Life Foundation, Inc. (HLF), trauma-informed Workforce Development Program on trainees
- Apply mixed methods research approaches to examine trainees' perceived readiness to serve as instructors in urban underserved communities.

- Train and supervise a team of research assistants in data management and use of mixed methods in mental health research.

2015-2017 *Graduate Student Researcher* Baltimore, MD
Department of Mental Health
Johns Hopkins Bloomberg School of Public Health
- Conduct quantitative analysis of alcohol use among Asian American minors using NSDUH data.
- Examine statistically significant differences in prevalence and incidence rates of alcohol use among Asian American subgroups and in comparison with White counterparts.

2015-2017 *Research Associate* Baltimore, MD
Behavioral Health Leadership Institute (BHLI)
- Mentor and build evaluation capacity of research evaluators across BHLI buprenorphine treatment sites.
- Analyze and manage confidential data for Baltimore City-based buprenorphine treatment programs.
- Collaborate with BHLI Executive Director and medical/legal staff to develop in-person and online harm reduction training modules for community health workers serving disadvantaged youth and families.

2015-2016 *Health Resources and Services Administration Fellow* Baltimore, MD
Neonatal Intensive Care Unit (NICU)
Johns Hopkins University Children's Hospital
- Evaluated a mindfulness pilot program to reduce symptoms of depression, anxiety, and trauma for mothers whose infants are receiving care in the neonatal intensive care unit (NICU).
- Applied qualitative and quantitative methodologies, including in-depth interviews, with participating mothers, to enhance feasibility and acceptability of program for target population of low-income mothers.

2014-2015 *Lead Research Consultant* Petit Goave, Haiti
Centre d'Education Inclusif (CEI)
- Led development and implementation of first age-specific disability survey in Haiti targeting school-aged children.
- Created budget proposal for initial stage of pilot research project.
- Conducted site visits and interviews with key informants from local Haitian schools, government agencies, and community organizations to understand mental health needs of primary school-aged children.

Summer 2010 *Health Policy Researcher* Geneva, Switzerland
Migration Health Department
International Organization for Migration (IOM)
Supervisors: Edward O'Rourke, MD, MPH; Nenette Motus, MD, MPH
- Assessed IOM's current systems of training, coordination, and delivery of mental health and psychosocial assistance to victims of human trafficking.

- Developed policy briefs and position papers on IOM's best practices in mental and psychosocial healthcare to harmonize efforts for future guidance and trainings of operational staff.

2008-2009 *Leadership Academy Health Fellow* Berkeley, CA
Bridges to Health Department
The Greenlining Institute
- Wrote and approved for a $26K+ grant proposal to the California Primary Access to Care (CPAC), UC Berkeley School of Public Health, to conduct a qualitative research analysis of the status of telemedicine in addressing the health needs of California's underserved populations.
- Authored subject area briefs related to healthcare policy and health disparities.

Summer 2008 *Research Intern* San Francisco, CA
Chronic Diseases Program
Asian Pacific Islander American Health Forum (APIAHF)
- Drafted fact sheets on cardiovascular disease, cancer, obesity, and maternal and child health in Asian American and Pacific Islander communities, highlighting lack of disaggregated data on these populations.

Summer 2006 *Child Welfare Policy Intern* Washington, DC
Center for Law and Social Policy (CLASP)
- Conducted literature review on federal and state child welfare financing reform.
- Analyzed structural challenges in securing adequate funding for critical social services for foster care children.

2005-2006 *Independent Student Researcher* Berkeley, CA
Departments of Ethnic Studies and Public Health
- Analyzed statistical and qualitative data on heart disease among Bay Area Filipinos.
- Networked with healthcare providers, community leaders, and Filipino immigrants familiar with Filipino health.

TEACHING EXPERIENCE

2016-present *Teaching Assistant* Baltimore, MD
Department of Mental Health
Johns Hopkins Bloomberg School of Public Health
- Provide technical assistance to 70+ students enrolled in graduate-level course, "Prevention of Mental Disorders: Public Health Interventions"

Spring 2016 *Discussion Leader* Baltimore, MD
Johns Hopkins Urban Health Institute
- Led group discussion among national experts, community leaders, residents, and faculty and students from Baltimore colleges and universities attending Fifth Annual Symposium on Social

Determinants of Health, "Race, Racism, and Baltimore's Future: A Focus on Structural and Institutional Racism."

2015-2016 *Guest Lecturer*
Johns Hopkins University Baltimore, MD
- Developed curriculum and taught biopsychosocial framework for understanding trauma to 40 undergraduate students.

2013-2014 *Course Co-Director* Boston, MA
Sole Train: Boston Runs Together
- Created and provided logistic oversight for CEU- and PDP-accredited Holistic Health Leadership course, including examination and evaluation material, for 35 adult volunteers who serve as mental health service providers and/or educators for Boston Public Schools.

Summer 2013 *Head Health and Wellness Instructor* Washington, DC
Asian American LEAD
- Designed and taught health and wellness curriculum to 40 low-income elementary school students.
- Coordinated service project to raise awareness about public health challenges including violence and childhood obesity in urban communities.

Aug. 2012-Jun. 2013 *Volunteer Lead Trainer* San Salvador, El Salvador
International Brain Education Association
- Coordinated and led mindfulness training as a means of building capacity and self-esteem of children from war-town, impoverished communities.
- Applied Spanish proficiency skills to facilitate field-based research assessing the impact of mindfulness in improving the psychosocial well-being of 300+ program participants.

2006-2007 *Volunteer ESL Instructor* Washington, DC
Social Justice and Community Services Committee
Cathedral of St. Matthew the Apostle
- Taught English as a Second Language to working class immigrants.

2006-2007 *Volunteer Science and Health Instructor* Washington, DC
General Education Development (GED) Preparation Program
Academy of Hope
- Created and implemented program's first integrated Science and Health curriculum emphasizing the sociobiological implications of health disparities.
- Engaged educationally and financially disadvantaged immigrants in discussions on women and minorities in science and medicine.

2005-2006 *Writing Instructor* Berkeley, CA
UC Berkeley Biology Scholars Program (BSP)
- Designed curriculum for program's first writing workshop series in which BSP members developed skills in critical analysis and thesis development.

PROFESSIONAL EXPERIENCE

May 2015-Dec. 2015 *Special Assistant to Deputy Health Commissioner* Baltimore, MD
Division of Youth Wellness and Community Health
Baltimore City Health Department
- Led survey development and preliminary evaluation of the Health Department's Healing Baltimore: Trauma-Informed Care intervention with 1000+ government agency employees and nonprofit professionals.
- Facilitated communication across local government agencies, community organizations, and direct youth service providers engaged in trauma-informed practices.
- Collaborated with Health Department and Behavioral Health Systems Baltimore staff to coordinate citywide trauma-informed care trainings and ongoing trauma-informed care implementation forums.
- Partnered with Health Department and Behavioral Health staff to design webpage that communicates information regarding efforts and initiatives to increase trauma-informed practices in Baltimore.

2013-2014 *Associate Director* Boston, MA
Sole Train: Boston Runs Together
- Conducted qualitative research and analysis of program's efforts to enhance resilience among at-risk urban through a community-based mentorship and noncompetitive, long-distance running program.
- Managed community building events and race logistics for 150+ program participants.
- Implemented mindfulness-based curriculum for 130+ adolescents, including justice-involved youth.

2008-2009 *Student Services Coordinator* San Francisco, CA
Level Playing Field Institute
- Served as primary advisor for first-generation college students in STEM (Science, Technology, Engineering, Math) courses at UC Berkeley.
- Designed and directed a one-on-one mentorship program connecting underrepresented students at UC Berkeley with graduate students and working professionals in Business, Law, and Medicine.

2008-2009 *Online Blog Contributor* Berkeley, CA
Young People For, People for the American Way
- Contributed weekly online posts with a focus on the relationship between social justice and the health field, including the social root causes of health disparities.

2006-2007 *Program Analyst* Washington, DC
Veteran Health Administration
U.S. Department of Veterans Affairs (VA)
- Spearheaded quantitative analysis of national dataset to develop patient selection criteria for solid organ transportation.
- Analyzed and compared VA's healthcare technology assessment to outside practices.

- Conducted utilization cost analysis and provided briefings on risks and benefits of surgical robotics to technical and non-technical audiences.

Mar. 2005-Sept. 2005 *Department of Prevention Intern* San Francisco, CA
Youth Leadership Institute
- Led collaborative effort with the San Francisco Department of Public Health to study the efficacy of the California STAKE (Stop Tobacco Access to Kids Enforcement) Act in curbing tobacco sales to underage minors.
- Co-facilitated media literacy discussions on the use of race, class, gender, and sexuality in alcohol ads.

Fall 2003 *Clinica de la Raza Bilingual Health Education Intern* Oakland, CA
UC Berkeley Health and Medicine Apprenticeship Program
- Collaborated with non-profit healthcare professionals to promote health education and prevention in low-income Latino communities.
- Co-facilitated workshop series on adolescent health, substance abuse, and nutrition-related topics to 70 middle school students.

LEADERSHIP AND MENTORING EXPERIENCE

2016-present *Mentor* Washington, DC
Young People For (YP4), People For the American Way
- Serving as a volunteer mentor working with two YP4 Fellows in one-on-one sessions that guide them through goal setting, network/relationship-building, and the creation of a Blueprint for Social Justice to address racial/ethnic health disparities.

2016-present *Mentor* Washington, DC
Catholic Charities Welcome Home Reentry Program
- Serving as a volunteer mentor for women returning to the community after a period of incarceration.

2014-present *Mentor* Washington, DC
Truman Scholars Association
- Serving as a volunteer mentor for Truman-Albright Mentors Fellows interested in health policy and/or public health.

2013-2014 *Mentor* Boston, MA
Boston Athletic Association
- Trained and completed half-marathon with group of 25 inner-city youth and adult volunteers.

2009-2010 *Mentor* Boston, MA
Judge Baker Children's Center: The Manville School
- Served as a volunteer mentor for an African-American female adolescent with clinical depression and anxiety.

Spring 2007 *Volunteer Trainer and Walk Participant* Washington, DC
Avon Foundation Breast Cancer Crusade
- Led weekly training practices in preparation for 39 mile walk.

- Raised over $2500 to support breast cancer screenings and education programs for low-income, African-American women in Washington, DC.

SPECIALIZED TRAINING

Aug. 2014-Aug. 2016	**Johns Hopkins Bloomberg School of Public Health** Department of Health Policy and Management - *Certificate in Health Finance and Management*	Baltimore, MD
Summer 2015	**Columbia University School of Public Health** Epidemiology and Population Health Summer Institute - *Specialized tutorial in Assessing Neighborhoods in Epidemiology*	New York, NY
Summer 2004	**Yale University School of Medicine** Minority Medical Education Program - *Completed coursework in Genetics, Physiology, and Communications*	New Haven, CT
Spring 2007	**Edward Tufte Presenting Data and Information** - *Specialized tutorial on visual design and display of quantitative data*	Washington, DC
Summer 2003	**Universidad Complutense** Institute of International Education (IIE) Osher Travel Abroad Program - *Specialized tutorial in Spanish-Latin American Relations*	Madrid, Spain

LANGUAGES

Fluent in English, Spanish, and Tagalog (Filipino)